


STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS AND MINING						FORM 3 AMENDED REPORT <input checked="" type="checkbox"/>				
<b>APPLICATION FOR PERMIT TO DRILL</b>						1. WELL NAME and NUMBER Wolverine State 20-5				
2. TYPE OF WORK DRILL NEW WELL <input checked="" type="checkbox"/> REENTER P&A WELL <input type="checkbox"/> DEEPEN WELL <input type="checkbox"/>						3. FIELD OR WILDCAT COVENANT				
4. TYPE OF WELL Oil Well Coalbed Methane Well: NO						5. UNIT or COMMUNITIZATION AGREEMENT NAME WOLVERINE				
6. NAME OF OPERATOR WOLVERINE GAS & OIL COMPANY OF UTAH, LLC						7. OPERATOR PHONE 435 896-1943				
8. ADDRESS OF OPERATOR 1140 N. Centennial Park Dr., Richfield, UT, 84701						9. OPERATOR E-MAIL ciron@wolvgas.com				
10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE) UT ML-46605			11. MINERAL OWNERSHIP FEDERAL <input type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>			12. SURFACE OWNERSHIP FEDERAL <input checked="" type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>				
13. NAME OF SURFACE OWNER (if box 12 = 'fee')						14. SURFACE OWNER PHONE (if box 12 = 'fee')				
15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')						16. SURFACE OWNER E-MAIL (if box 12 = 'fee')				
17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')			18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS YES <input type="checkbox"/> (Submit Commingling Application) NO <input checked="" type="checkbox"/>			19. SLANT VERTICAL <input type="checkbox"/> DIRECTIONAL <input checked="" type="checkbox"/> HORIZONTAL <input type="checkbox"/>				
20. LOCATION OF WELL		FOOTAGES		QTR-QTR	SECTION	TOWNSHIP	RANGE	MERIDIAN		
LOCATION AT SURFACE		342 FNL 1901 FWL		NENW	20	23.0 S	1.0 W	S		
Top of Uppermost Producing Zone		2291 FSL 678 FWL		NWSW	20	23.0 S	1.0 W	S		
At Total Depth		2291 FSL 678 FWL		NWSW	20	23.0 S	1.0 W	S		
21. COUNTY SEVIER			22. DISTANCE TO NEAREST LEASE LINE (Feet) 474			23. NUMBER OF ACRES IN DRILLING UNIT 40				
			25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed) 1064			26. PROPOSED DEPTH MD: 13800 TVD: 13133				
27. ELEVATION - GROUND LEVEL 5874			28. BOND NUMBER B001849R			29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE Town of Sigurd				
<b>Hole, Casing, and Cement Information</b>										
String	Hole Size	Casing Size	Length	Weight	Grade & Thread	Max Mud Wt.	Cement	Sacks	Yield	Weight
Surf	17.5	13.375	0 - 2000	68.0	J-55 ST&C	8.5	Rockies Lite	440	3.49	11.5
							Premium Plus	500	1.16	15.6
I1	12.25	9.625	0 - 10600	53.5	L-80 LT&C	8.9	Rockies Lite	500	3.49	11.5
							Premium Plus	200	1.16	15.8
							Rockies Lite	450	3.49	11.5
L1	8.5	7.625	10400 - 12600	33.7	L-80 VAM ACE	9.0	Light (Hibond)	150	1.45	14.5
L2	6.5	4.5	12400 - 13800	11.6	N-80 LT&C	9.0	Light (Hibond)	126	3.45	14.5
<b>ATTACHMENTS</b>										
<b>VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES</b>										
<input checked="" type="checkbox"/> WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER					<input checked="" type="checkbox"/> COMPLETE DRILLING PLAN					
<input type="checkbox"/> AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)					<input type="checkbox"/> FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER					
<input checked="" type="checkbox"/> DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)					<input checked="" type="checkbox"/> TOPOGRAPHICAL MAP					
NAME Charles Irons				TITLE Senior Landman			PHONE 435 896-1943			
SIGNATURE				DATE 03/09/2011			EMAIL ciron@wolvgas.com			
API NUMBER ASSIGNED 43041500060000				APPROVAL  Permit Manager						

# **WOLVERINE GAS AND OIL COMPANY OF UTAH, LLC**

## **DRILLING PLAN**

### **Wolverine State 20-5**

**SHL: 342' FNL & 1901 FWL Section 20, T23S-R01W**

**BHL: 2291 FSL & 678 FWL Section 20, T23S-R01W**

**Sevier County, Utah**

#### **Plan Summary:**

This plan covers the drilling of an exploratory test in the Covenant Field to evaluate a Navajo target in the footwall splay. This well will be directionally drilled from a pad adjacent and contiguous to Pad D. This well will be directionally drilled to a measured depth of 13,800' MD to test the Jurassic Navajo. Well bore issues caused by subsurface geologic irregularities, plastic salts, faults, possible loss circulation and hole instabilities are expected to be the primary drilling concerns in this area. Abnormal pressure is not anticipated.

The planned location is as follows:

Surface Location: 342' FNL, & 1901' FWL, Section 20, T23S, R1W, S.L.B. & M.

Bottom Hole Location @ total depth 2291' FSL & 678' FWL, Section 20, T23S, R1W, S.L.B. & M.

Twenty-inch conductor will be set to approximately 120' below ground level. A 17.5" hole will be drilled to approximately 2000' MD with a fresh water mud, where 13-3/8" surface casing will be set and cemented to surface. A 12-1/4" hole, using an OBM, will be drilled through the Navajo and to the Chinle to approximately 10,600' MD where the well will be logged and 9-5/8" casing will be set and cemented. Then, an 8-1/2" hole will be drilled to 12,200' MD where a 7-5/8" liner will be set from 9600' (200' overlap) to 12,600' and cemented in place. Then a 6-1/2" hole, using a low chloride mud, will be drilled to a proposed TD of 13,800' MD. If hole conditions warrant, consideration will be given to forego the liner and drill the Navajo section with the OBM. The well will be logged and if sufficient porosity and hydrocarbons are encountered, then a 4.5" liner with a tie-back assembly will be set and cemented in place.

The well will be directionally drilled with a kick off point of 1600' where the well will build to 24 degrees from vertical and hold 24 degrees from 2700' to 9500'. At 9500' the well will begin to drop to vertical and be back to vertical by 11,100'. The well will continue to be drilled vertically to approximately 13,800'.

Activities for this well are expected to commence as soon as possible with the site construction in April, if the permit is approved, and with drilling operations commencing June 1, 2011.

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**Well Name:** **Wolverine State 20-5**

**Surface Location:** 342' FNL & 1901' FWL, Section 20, T23S, R1W, S.L.B. & M  
 NE/4 of the NW/4 Section 20, T23S, R1W, S.L.B. & M.  
 Sevier County, Utah

**TD Bottom-Hole Location:** 2291' FSL & 678' FWL, Section 20, T23S, R1W, S.L.B. & M  
 NW/4 of the SW/4 Section 20, T23S, R1W, S.L.B. & M.  
 Sevier County, Utah

**Elevations:** 5874' GL (graded), 5896' DF (est.)

## I. Geology:

Tops of important geologic markers and anticipated oil (O), gas (G), or water (W), content are as follows:

<b>Formation</b>	<b>TVD Interval (KB)</b>	<b>MD Interval (DF)</b>	<b>Contents</b>	<b>Pressure Gradient</b>
Arapien	22	22		
Twin Creek	5797	6130	O, G, W	0.44 psi/ft
Navajo	6137	6500	O, G, W	0.44 psi/ft
Kayenta	7142	7600		
Wingate	7322	7800		
Chinle	7697	8208		
Moenkopi	8247	8810		
Shnabkaib	9022	9660		
Chinle 2	9729	10392		
Moenkopi 2	10229	10900		
Shnabkaib	10995	11662		
Saline Thrust	11854	12522		
Twin Creek (thrust)	11854	12522	O, G, W	0.44 psi/ft
Navajo	12194	12860	O,G,W	0.44 psi/ft
Proposed TD	13,133	13,800'		

## II. Well Control:

The contracted drilling rig will have a minimum 5M BOP system. BOPE will be in place on the 13-3/8" surface casing and tested as a 5M system prior to drilling out the surface casing shoe. See attached schematic of BOPE.

A. The BOPE will, as a minimum, include the following:

Wellhead Equipment (5M Min.):

<b>BOPE Item</b>	<b>Flange Size and Rating</b>
Annular Preventer	13-5/8" 2.5M
Double Rams (5" Pipe - top, Blind - bottom)	13-5/8" 5M
Drilling Spool w/ 2 side outlets (4" Choke Line, 4" Kill Line)	13-5/8" 5M x 13-5/8" 5M
Single Ram (Pipe)	13-5/8" 5M
Casing Head (13-5/8" SOW w/ two 2-1/16" SSO's)	13-5/8" 5M

Auxiliary Equipment (5M Min.):

<b><u>BOPE Item</u></b>
Choke Line with 2 valves (3" minimum)
Kill Line with 2 valves and one check valve (2" Minimum)
2 Chokes with one remotely controlled at a location readily accessible to the driller
Upper and lower kelly cock valves with handles
Safety Valves to fit all drill string connections in use
Inside BOP or float sub
Pressure gauge on choke manifold
Fill-up line above the uppermost preventer
Wear bushing in casing head

- B. **Choke manifold** will be functionally equipped and sized at a minimum as shown on the attached diagram. All choke lines will be straight lines unless turns have tee blocks or are targeted with running tees, and all choke lines will be anchored. All valves (except chokes) in the kill line choke manifold and choke line will be full opening and allow straight through flow.
- C. **System accumulator** will have sufficient capacity to open the hydraulically-controlled gate valve and close all rams plus the annular preventer (3 ram system will have added 50 percent safety factor to compensate for any fluid loss in the control system or preventers) and retain a minimum pressure of 200 psi above pre-charge on the closing manifold without use of the closing unit pumps. The fluid reservoir capacity shall be double the usable fluid volume of the accumulator system capacity and the fluid level of the reservoir shall be maintained at the manufacturer's recommendations. The accumulator will have two (2) independent power sources available to close the preventers. Nitrogen bottles may be one of those sources, and if so, will have charge maintained per manufacturer's specifications.
- D. **Accumulator pre-charge pressure test** will be conducted prior to connecting the closing unit to the BOP stack and at least once every 6 months. The accumulator pressure will be corrected if the measured precharge pressure is found to be above or below the maximum or minimum specified limits. Only nitrogen gas will be used to precharge.
- E. **Power for the closing unit pumps** will be available to the unit at all times so that the pumps will automatically start when the closing valve manifold pressure has decreased to the pre-set level.
- F. **Accumulator pump capacity** will be such that, with the accumulator system isolated from service, the pumps will be capable of opening the hydraulically-operated gate valve (if so equipped), plus closing the annular preventer on the smallest size drill pipe to be used within 2 minutes, and retaining a minimum of 200 psi above the specified accumulator pre-charge pressure.
- G. **Locking devices**, either manual (i.e., hand wheels) or automatic, will be installed on the ram type preventers. A valve will be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative.
- H. **Remote controls** will be readily accessible to the driller and will be capable of both opening and closing all preventers. Master controls shall be at the accumulator and shall be capable of opening and closing all preventers and the choke line valve.
- I. **Well control equipment testing** will be performed using clear water when the equipment is initially installed, whenever any seal subject to test pressure is broken, following related repairs, and as a minimum, every 30-day interval. The tests will apply to all related well control equipment.

Ram type preventers and associated equipment will be isolated and tested to 5000 psi. The annular preventer will be tested to 2500 psi. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer, for all tests. A casing head valve will be open below the test plug during testing of the BOP stack. Valves will be tested from the working pressure side with all down-stream valves open. Kill line valves will be tested with the check valve held open or the ball removed.



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Pipe and blind rams will be activated each trip, but not more than once a day. The annular preventers will be functionally operated at least weekly. A pit level drill will be conducted weekly for each crew. All BOPE drills and tests will be recorded in the IADC driller's log.

### III. Casing and Cementing:

#### A. Casing Program (all new casing):

<u>Hole Size</u>	<u>Casing Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Connection</u>	<u>Coupling Diameter</u>	<u>Setting Depth</u>
24"	20"				NA	0' - 120' GL
17.5"	13-3/8"	68	J-55	STC	14.375	0' - 2000' DF
12.25"	9.625"	53.5	L-80	LTC	10.625	0' - 10,600' DF
8.50"	7.625"	33.7	N-80	FJ	7.625	10400' - 12,600' DF
6.50"	4.50"	11.6	N-80	LTC	5.0	12400' - 13,800' DF

#### 20-inch conductor-set at 120 GL (144' DF)

The conductor will be set by Pete Martin Services or equivalent spudder rig. No design is conducted on this pipe. It will be cemented with Class G neat cement, using a tremie pipe, placed in stages in the 20" x 26" annulus.

#### 13-3/8", 68 #/ft, J-55 BTC casing set at 2000' MD DF (into Arapien)

The 17.5" hole/13-3/8" casing section will be drilled with a conventional drilling rig into the Arapien, where casing will be set and cemented to surface. The casing design parameters are detailed below:

**Burst:** Worst case burst load occurs, while drilling the 12.25" hole section, if the well experiences an influx of gas from ~ 9900 feet TVD (~ 10,600' MD). Assume the casing is 90% filled with gas. In that case, assuming a fresh water pore pressure gradient to 9900 ft, 9 ppg fluid inside the casing and a gas gradient equal to 0.1 psi/ft, maximum burst differential pressure would occur at the surface:  $P = 0.433 \times 9900 - 0.1 \times 9900 \times 0.052 \times 9 - 0.1 \times 0.9 \times 9900 = 2932$  psi. The selected casing, 13-3/8" 68# J-55 STC, has burst strength of 3450 psi. The burst design factor is  $DF_b = 3450/2932 = 1.18$  which is  $> 1.1$ , therefore OK.

**Collapse:** Worst case collapse load occurs if the casing is evacuated during drilling, although this is very unlikely and has not been seen drilling the Arapien or Navajo in this region. However, even under the worst case scenario of full evacuation (albeit unlikely), this casing would have a collapse load, assuming a pore pressure of 0.44 psi/ft, of  $P_c = 0.44 \text{ psi/ft} \times 2000' = 880$  psi. The selected casing has collapse strength of 1950 psi. The collapse design factor is:  $DF_c = 1950/880 = 2.22$ , which is  $> 1.126$ , therefore OK.

**Tension:** String weight in air is:  $T = 68 \times 2000 = 136,000$  lbs. Tube strength is 1069 kips; joint strength (STC) is 675 kips. The tension design factor in air is:  $DF_t = 675000/136000 = 4.96$ , which is  $> 1.8$ , therefore OK.

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### **Cementing Program -13-3/8":**

13-3/8" casing will be cemented from setting depth (2000' MD DF) to surface in a single stage using the following mix. Hardware will include a guide shoe, shoe joint, float collar, wiper plugs, and a minimum of one centralizer per joint on the bottom three (3) casing joints. Water or other pre-flush fluid pumped ahead of the slurry will separate cement from the drilling fluids. Cement volumes are based on 50% excess in the openhole, 1500 feet of 11.5 ppg lead cement from surface to 1500' and 500 feet 15.6 ppg tail cement from 1500 to 2000 feet.

Cement: Lead: 440 sacks Rockies LT, 11.5 ppg, 3.49 cf/sx Yield

Tail: 500 sacks Premium, 15.6 ppg, 1.16 cf/sx Yield

### **9-5/8", 53.5 #/ft L-80 casing set at 10,600' MD DF (~9900' TVD)**

The 12-1/4" hole/9-5/8" casing section will be drilled directionally with Patterson Rig 304 through the Twin Creek and Navajo and into the Chinle, where 9-5/8" casing will be set and cemented to inside the 13-3/8" casing. The casing design parameters are detailed below:

Burst: Worst case burst load during drilling occurs if the well experiences an influx of gas from 13,130 feet TVD. Assume the casing is filled with gas. In that case, assuming a fresh water pore pressure gradient to 13,130 ft TVD and a gas gradient equal to 0.1 psi/ft, maximum burst differential pressure would occur at the surface:  
 $P = 0.433 \times 13130 - 0.1 \times 13130 = 4372$  psi. The selected casing, 9-5/8" 53.5 #/ft L-80 LTC, has burst strength of 7930 psi. The burst design factor is  $DF_c = 7930/4372 = 1.81$ , which is  $> 1.1$ , therefore OK.

Collapse: Worst case collapse load occurs if the casing is evacuated. Collapse pressure attributed to fresh water pore pressure gradient is:  $P = 0.433 \times 9900' = 4287$  psi. The selected casing has collapse strength of 6620 psi. The collapse design factor is  $DF_c = 6620/4287 = 1.54$ , which is  $> 1.125$ , therefore OK.

Alternate Collapse, salt considerations: The Arapien formation contains salt stringers throughout. The salt stringers, due to creep, can apply unusually high collapse loads to the casing. Wolverine standard design for this area is to design for 1 psi/ft of depth external pressure with a fresh water gradient inside the pipe and with a minimum design factor of 1.000. Arapien is predicted to occur from 22' to 5800' TVD.

Maximum salt induced pressure applied to the 53.5# L-80 casing occurs at 5800' TVD (at base of Arapien):  
 $P = 5800 - 0.433 \times 5800 = 3288$  psi. 9-5/8" 53.5 #/ft L-80 has collapse strength of 6620. The collapse design factor across the salts in the L-80 casing is:  $DF_c = 6620/3288 = 2.01$ , which is greater than 1.0, therefore OK.

Another maximum potential collapse pressure involves evacuating the string such as would occur if the well were swabbed below 5800' MD, the base of the Arapien. In this case, salt collapse load could be applied to the outside of the 9-5/8" casing with no backup pressure on the inside of the casing.  
 $P = 5800$  psi. The  $DF_c$  for L-80 casing is  $6620/5800 = 1.14$ , which is  $> 1.0$ , therefore OK.

Tension: String weight in air is:  $T = 53.5 \times 10,600' = 567,100$  lbs. Joint strength (LTC) is 1047 kips; tube strength is 1244 kips. The tension design factor in air is:  $DF_t = 1047000/567,100 = 1.846$ , which is  $> 1.8$ , therefore OK.

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### **Cementing Program- 9-5/8”:**

9-5/8” casing will be cemented from setting depth 10,600 to 1500’ (500 feet inside casing) in two stages using the following mix. Hardware will include a guide shoe, two shoe joints, float collar, top plug, and a minimum of one centralizer per joint on the bottom three (3) casing joints and one per joint through the pay zone. The stage tool will be planned for ~5600’ TVD. Water or other pre-flush fluid pumped ahead of the slurry will separate cement from the drilling fluids. Cement volumes are based on 25% excess in the openhole, 5000 feet of cement from 5600-10,600 feet for stage 1, which includes a 500’ tail from 10,100-10,600’, and 4100 feet of cement from 1500 to 5600 feet for stage 2, as follows:

Cement: Stage 1: 500 sacks Rockies LT, 11.5 ppg, 3.49 cf/sx Yield, followed by 500’ tail with  
 200 sacks Premium, 15.8 ppg, 1.16 cu. Ft/sacks Yield  
 Stage 2: 450 sacks, Rockies LT, 11.5 ppg, 3.49 cf/sx Yield

### **7-5/8”, 33.7 N-80 FJ liner set from 10,400 to 12,600’ MD DF**

The 8.5” hole/7-5/8” liner section will be directionally drilled with Patterson Rig 304 to the top of the Twin Creek, and then the liner will be run and cemented, if necessary, covering the potentially problematic Moenkopi. Consideration will be given to forego this liner, if the hole is stable, and drill to TD with the OBM system. The liner design parameters are detailed below:

Burst: Worst case burst occurs at 12,100’ MD (just above the 5” liner top) with a tubing leak at surface and a packer set at 12,100’. Assuming a fresh water pore pressure gradient, the well is producing from perforations at 12,200’ TVD, the tubing is filled with gas and the packer fluid has a gradient of 0.465 psi.  $P = 0.433 \times 12200 \text{ TVD} - 0.1 \times 12200 + 0.465 \times 12100 - 0.433 \times 12100 = 4450 \text{ psi}$ . The 7-5/8, 33.7# N-80 liner has burst strength of 7900 psi. The burst design factor is:  $DFb = 7900/4450 = 1.78$ , which is  $> 1.1$ , therefore OK.

Collapse: Worst case collapse occurs if the casing is evacuated. Collapse pressure attributed to fresh water pore pressure gradient is:  $P = 0.433 \times 12000 \text{ TVD} = 5285 \text{ psi}$ . The selected casing has collapse strength of 6560 psi. The collapse design factor is  $DFc = 6560/5285 = 1.24$ , which is  $> 1.125$ , therefore OK.

Tension: String weight in air is:  $T = 33.7 \times (12200 - 9700) = 84,250 \text{ lbs}$ . Joint strength is 547,100 (Ultra FJ); body strength is 778,000 lbs. The tension design factor in air is:  $DFt = 547100/84250 = 6.49$ , which is  $> 1.8$ , therefore OK.

### **Cementing Program – 7-5/8” liner:**

The 7-5/8” liner will be cemented from 10,400’ MD (200’ overlap) to 12,600’ MD in a single stage using the following mix. The liner will be suspended from drill pipe and a liner hanger with a tie-back option. The 7-5/8” liner will be cemented over its entire length (~ 2200 feet of length from 10400’ to 12600’ MD). Hardware will include a guide shoe, two shoe joints, float collar, top plug, and a minimum of one centralizer per casing joints. Water or other pre-flush fluid pumped ahead of the slurry will separate cement from the drilling fluids. Cement volumes are based on 15% excess in the openhole, 2200 of cement from 10400 to 12600 feet.

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Cement: 150 sacks Bondcem, 14.5 ppg, 1.45 cf/sx Yield

**4.5", 11.6 #/ft, N-80 LTC set from 12,400' to 13800' MD**

The 6.5" hole/5" liner section will be drilled directionally with Patterson Rig 304 through the target Navajo, where the formations will be logged and evaluated. If warranted a 4.5" liner would be set across the prospective pay zone and cemented to inside the 7-5/8" liner. The casing design parameters are detailed below:

Burst: Worst case burst load occurs at 12,100 ft TVD, just above a packer, with a tubing leak at surface. Assume a fresh water pore pressure gradient, the well is producing from perforations at 12,200' TVD, the tubing is filled with gas and the packer fluid has a gradient of 0.465 psi/ft.  
 $P = 0.433 \times 12200 - 0.1 \times 12200 + 0.465 \times 12100 - 0.433 \times 12100 = 4450$  psi. The selected casing, 5" 15#/ft N-80 has burst strength of 8290 psi. The burst design factor is:  $DF_b = 8290/4450 = 1.86$ , which is  $> 1.1$ , therefore OK.

Collapse: Worst case collapse load occurs if the casing is evacuated. Collapse pressure attributed to fresh water pore pressure gradient is:  $P = 0.433 \times 13500 = 5845$  psi. The selected casing has collapse strength of 7250 psi. The collapse design factor is  $DF_c = 7250/5845 = 1.24$ , which is  $> 1.125$ , therefore OK.

Tension: String weight in air is:  $T = 15 \times (13750 - 11000) = 41,250$ . Joint strength is 235,000 lbs; body strength is 350,000 lbs. The tension design factor in air is:  $DF_t = 235,000/41,250 = 5.7$ , which is  $> 1.8$ , therefore OK.

**Cementing Program 4.5" liner:**

This is a liner cement job. 6.5" hole will be drilled from 12,600' to 13800' MD. The liner will be suspended from drill pipe and a liner hanger. The 4.5" liner will be cemented over its entire length (~ 1400 feet of length from 12,400' to 13800' MD) in a single stage using the following mix. Hardware will include a guide shoe, two shoe joints, float collar, top plug, and a minimum of one centralizer per joint. Water or other preflush fluid pumped ahead of the slurry will separate cement from the drilling fluids.

Cement: 126 sacks Bondcem, 14.5 ppg, 1.45 cf/sk Yield

Casing with same or greater burst, collapse, and tension rating may be substituted for any of the planned casing sizes depending on availability and actual conditions. A minimum of 20 percent silica will be added to the cement slurry if bottom-hole temperature exceeds 230 °F.

- Other:
- The BLM will be notified at least twenty-four hours prior to running and cementing the surface and production casing strings.
  - Actual cement slurries for all casing will be based on final service company recommendations.

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- The size, weight, grade, type of thread, number of joints, and footage of all casing run will be recorded in the driller's log. The amount and type of all cement pumped will be recorded in the driller's log.
- Adequate time will be allowed before drilling out for the cement at the casing shoe to achieve a minimum 500-psi compressive strength.
- All casing strings will be tested to 1500 psi before drilling out and if pressure declines by more than 10 percent in 30 minutes, corrective action will be taken.
- Before drilling more than 20 feet of new hole below each casing string, a pressure integrity test of the casing shoe will be performed to a minimum of the mud weight equivalent anticipated to control the pore pressure to the next casing depth or at total depth of the well.

#### IV. Mud Program:

<u>Depth</u>	<u>Mud Weight (ppg)</u>	<u>Mud Type</u>	<u>PV/YP</u>	<u>Fluid Loss</u>
0 – 2000'	8.5	Fresh Water mud	8/15	NC
2000'- 12200'	8.9	OBM	25/25	<2 cc
12200-13800'	9	LSND Water Mud (could drill this section w/OBM if liner not required)	12/18	6 cc

- A. After mudding up, slow pump rates will be taken daily and recorded in the driller's log.
- B. Visual mud monitoring equipment will be in place to detect volume changes indicating loss or gain of circulating fluid volume.
- C. Abnormal pressures are not anticipated. In the event such pressures are to be anticipated, electronic/mechanical mud monitoring equipment will be in place and include as a minimum; pit volume totalizer (PVT); stroke counter; and flow sensor.
- D. A mud test will be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- E. The 10M BOPE system is not required for conditions on this well and use of the trip tank is not anticipated.
- F. Gas detecting equipment will be installed in the mud return system after surface casing is installed, and hydrocarbon gas shall be monitored for pore pressure changes. The presence of Hydrogen Sulfide gas is possible so appropriate precautions will be taken in the event that it is encountered.
- G. A flare system designed to gather and burn all gas will be available. The flare line discharge will be located at least 150 feet from the well head and it will be positioned downwind of the prevailing wind direction. The flare line will have straight lines unless turns are targeted with running tees and it will be anchored. The flare system will have an effective method for ignition.
- H. Abnormal pressure is not expected. If abnormal pressure is to be anticipated, a mud-gas separator (gas buster) will be installed and operable beginning at a point at least 500 feet above any anticipated hydrocarbon zone of interest.

#### V. Evaluation:

Wolverine Gas and Oil Company of Utah, LLC  
APD Drilling Program  
Wolverine State 20-5

- A. Mud Log: a mud logger will collect samples from surface casing to TD. A mud logging unit will be in operation from a depth of approximately 2000 feet to TD. Samples will be caught, cleaned, bagged, and marked as required.
- B. Drill Stem Tests: There are no DSTs planned.
- C. Coring: There are no cores planned.
- D. Wireline Logs: Wireline logs will be run as hole conditions allow from total depth to surface casing to assist in determining lithology and potential for hydrocarbon recovery. The logging tools will at a minimum survey resistivity, gamma radiation, and porosity logs.

**VI. Expected Bottom-Hole Pressure and Abnormal Conditions:**

- A. Hydrogen Sulfide: The presence of Hydrogen Sulfide (H<sub>2</sub>S) gas is possible and appropriate safety procedures are to be in place before penetrating the Twin Creek 2 Formation.
- B. Pressure: No abnormally pressured zones are expected in this well. The pressure gradient for all potentially productive formations is expected to be approximately 0.44 psi/ft.
- C. Temperature: Static bottom-hole temperature at TD is expected to be approximately 260 °F.

end

CONFIDENTIAL

**Section 20, T.23 S., R.1 W., S.L.B. & M.****Wolverine Gas & Oil Company of Utah, L.L.C.**

WELL LOCATION, LOCATED AS SHOWN IN THE N.E. 1/4 OF THE  
N.W. 1/4 OF SECTION 20, T.23 S., R.1 W., S.L.B. & M.  
SEVIER COUNTY, UTAH

**LEGEND**

- ✱ SECTION CORNERS (LOCATED)
- ⬢ QUARTER SECTION CORNERS (LOCATED)
- ⊙ PROPOSED SURFACE WELL LOCATION
- ⊙ PROPOSED BOTTOM HOLE LOCATION

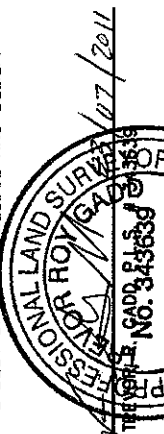
NOTE: THE PURPOSE OF THIS SURVEY WAS TO PLAT  
THE WOLVERINE STATE 20-5 LOCATION,  
LOCATED IN THE N.E. 1/4 OF THE N.W. 1/4 OF  
SECTION 20, T.23 S., R.1 W., S.L.B. & M.  
SEVIER COUNTY, UTAH.

**BASIS OF ELEVATION**

ELEVATION BASED ON N.A.V.D. 1988

**CERTIFICATE**

THIS IS TO CERTIFY THAT THIS PLAT WAS PREPARED FROM  
FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER  
MY SUPERVISION, AND THAT THE SAME ARE TRUE AND  
CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



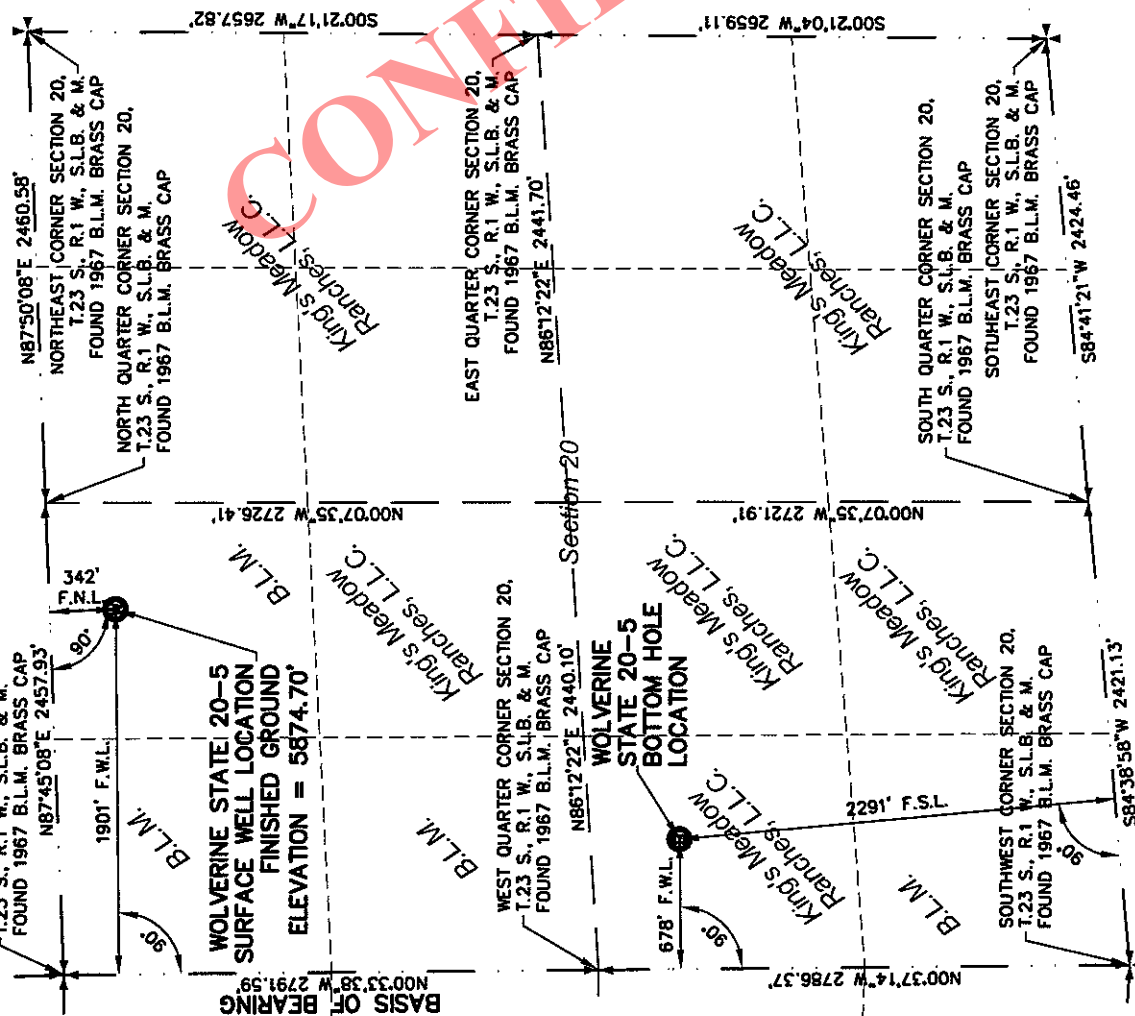
**Jones & DeMille Engineering, Inc.**

1535 South 100 West  
Price, Utah 84501  
Voice 435.637.8266  
Fax 435.637.8268  
www.jonesanddemille.com

**Well Location Plat for**

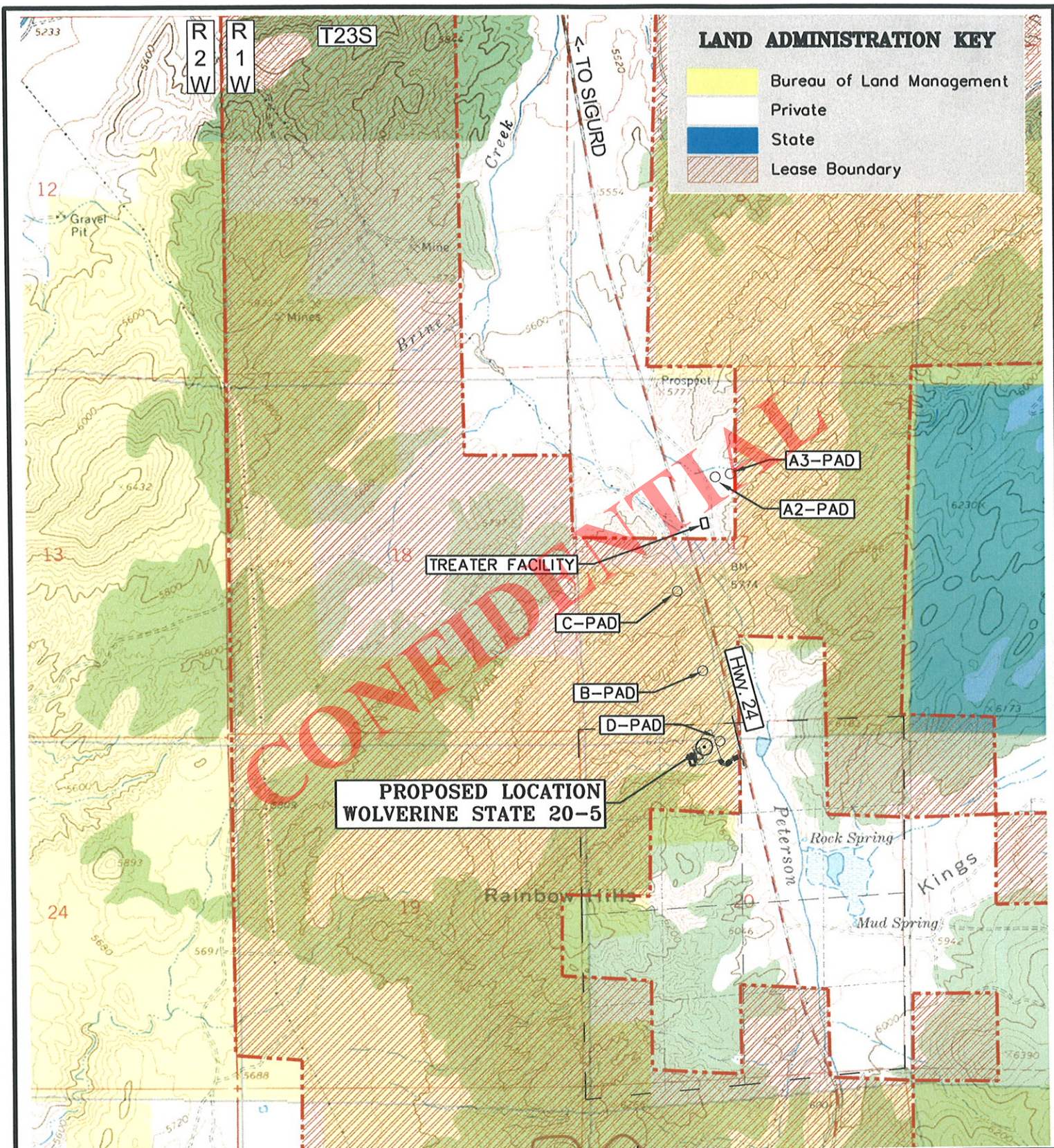
**Wolverine Gas & Oil Company of Utah, L.L.C.**

DESIGNED	SURVEYED	CHECKED	DRAWN	PROJECT NO.	SHEET NO.
—	J.G.C.	—	J.R.G.	1102-122	1
DATE	02/25/11	OWNERS	SCALE		
		PADD TOPO.	1"=1000'		

**BASIS OF BEARINGS**

BASIS OF BEARING USED WAS N00°33'38"W BETWEEN THE WEST QUARTER CORNER AND THE  
NORTHWEST CORNER OF SECTION 20, T.23 S., R.1 W., S.L.B. & M.  
S.H.L. LAT.: 38°47'39.4274" (38.794285389) NAD83 - UTM ZONE 12 NAD27 N 14088419.724  
S.H.L. LONG.: -111°56'04.8719" (-111.934686639) NAD83 - UTM ZONE 12 NAD27 E 1374317.882  
B.H.L. LAT.: 38°47'10.2313" (38.786175361) - UTM ZONE 12 NAD27 N 14085479.121  
B.H.L. LONG.: -111°56'19.7695" (-111.938824861) - UTM ZONE 12 NAD27 E 1373108.474





**LEGEND**

○ PROPOSED LOCATION      ..... PROPOSED ACCESS ROAD

**Wolverine State 20-5**  
**Section 20, T.23 S., R.1 W., S.L.B. & M.**  
**1901' FWL 342' FNL**



**Jones & DeMille Engineering, Inc.**

1535 South 100 West      248 East Main  
 Richfield, Utah 84701      Price, Utah 84501  
 Voice 435.896.8266      Voice 435.637.8266  
 Fax 435.896.8268      Fax 435.637.8268

[www.jonesanddemille.com](http://www.jonesanddemille.com)



SCALE: 1"=2000'

Wolverine Gas & Oil Co. of Utah, LLC

Wolverine State 20-5

Vicinity Map

DRAWN: L.G. 03-2011	PEN TBL: _1stndrd-hp2600.ctb	PROJECT: 1102-122	SHEET: 1
CHECK: D.R. 03-2011	FILE: VICINITY	LAST UPDATE: 3/4/2011	

**RECEIVED** Mar. 09, 2011





Company: Wolverine Gas & Oil  
 Field: Exploration  
 Cty/Blk/Par: Sevier County, UT  
 Well Name: WS 20-5  
 Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
 Magnetic Decl.: \_\_\_\_\_  
 Grid Corr.: \_\_\_\_\_  
 Total Survey Corr.: \_\_\_\_\_  
 Target Info: DRAFT COPY-For APD Purposes Only

Calculation Method Minimum Curvature  
 Proposed Azimuth 205  
 Depth Reference \_\_\_\_\_  
 Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
0		0	0.00	0.00		0.00		0.00	0.00					
1		100.00	0.00	0.00	100	100.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
2		200.00	0.00	0.00	100	200.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
3		300.00	0.00	0.00	100	300.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
4		400.00	0.00	0.00	100	400.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
5		500.00	0.00	205.00	100	500.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	205.0
6		600.00	0.00	205.00	100	600.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
7		700.00	0.00	205.00	100	700.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
8		800.00	0.00	205.00	100	800.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
9		900.00	0.00	205.00	100	900.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
10		1,000.00	0.00	205.00	100	1000.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
11		1,100.00	0.00	205.00	100	1100.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
12		1,200.00	0.00	205.00	100	1200.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
13		1,300.00	0.00	205.00	100	1300.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
14		1,400.00	0.00	205.00	100	1400.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
15		1,500.00	0.00	205.00	100	1500.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
16		1,600.00	2.00	205.00	100	1599.98	1.75	1.58 S	0.74 W	1.75	205.00	2.00	2.0	0.0
17		1,700.00	4.00	205.00	100	1699.84	6.98	6.32 S	2.95 W	6.98	205.00	2.00	2.0	0.0
18		1,800.00	6.00	205.00	100	1799.45	15.69	14.22 S	6.63 W	15.69	205.00	2.00	2.0	0.0
19		1,900.00	8.00	205.00	100	1898.70	27.88	25.27 S	11.78 W	27.88	205.00	2.00	2.0	0.0
20		2,000.00	10.00	205.00	100	1997.47	43.52	39.44 S	18.39 W	43.52	205.00	2.00	2.0	0.0
21		2,100.00	12.00	205.00	100	2095.62	62.60	56.74 S	26.46 W	62.60	205.00	2.00	2.0	0.0
22		2,200.00	14.00	205.00	100	2193.06	85.10	77.12 S	35.96 W	85.10	205.00	2.00	2.0	0.0
23		2,300.00	16.00	205.00	100	2289.64	110.98	100.58 S	46.90 W	110.98	205.00	2.00	2.0	0.0
24		2,400.00	18.00	205.00	100	2385.27	140.21	127.08 S	59.26 W	140.21	205.00	2.00	2.0	0.0
25		2,500.00	20.00	205.00	100	2479.82	172.77	156.58 S	73.01 W	172.77	205.00	2.00	2.0	0.0



Company: Wolverine Gas & Oil  
 Field: Exploration  
 Cty/Blk/Par: Sevier County, UT  
 Well Name: WS 20-5  
 Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
 Magnetic Decl.: \_\_\_\_\_  
 Grid Corr.: \_\_\_\_\_  
 Total Survey Corr.: \_\_\_\_\_  
 Target Info: DRAFT COPY-For APD Purposes Only

Calculation Method Minimum Curvature  
 Proposed Azimuth 205  
 Depth Reference \_\_\_\_\_  
 Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
26		2,600.00	22.00	205.00	100	2573.17	208.60	189.06 S	88.16 W	208.60	205.00	2.00	2.0	0.0
27		2,700.00	24.00	205.00	100	2665.21	247.67	224.47 S	104.67 W	247.67	205.00	2.00	2.0	0.0
28		2,800.00	24.00	205.00	100	2756.57	288.35	261.33 S	121.86 W	288.35	205.00	0.00	0.0	0.0
29		2,900.00	24.00	205.00	100	2847.92	329.02	298.19 S	139.05 W	329.02	205.00	0.00	0.0	0.0
30		3,000.00	24.00	205.00	100	2939.28	369.70	335.06 S	156.24 W	369.70	205.00	0.00	0.0	0.0
31		3,100.00	24.00	205.00	100	3030.63	410.37	371.92 S	173.43 W	410.37	205.00	0.00	0.0	0.0
32		3,200.00	24.00	205.00	100	3121.99	451.04	408.78 S	190.62 W	451.04	205.00	0.00	0.0	0.0
33		3,300.00	24.00	205.00	100	3213.34	491.72	445.65 S	207.81 W	491.72	205.00	0.00	0.0	0.0
34		3,400.00	24.00	205.00	100	3304.70	532.39	482.51 S	225.00 W	532.39	205.00	0.00	0.0	0.0
35		3,500.00	24.00	205.00	100	3396.05	573.06	519.37 S	242.19 W	573.06	205.00	0.00	0.0	0.0
36		3,600.00	24.00	205.00	100	3487.41	613.74	556.23 S	259.38 W	613.74	205.00	0.00	0.0	0.0
37		3,700.00	24.00	205.00	100	3578.76	654.41	593.10 S	276.57 W	654.41	205.00	0.00	0.0	0.0
38		3,800.00	24.00	205.00	100	3670.11	695.08	629.96 S	293.76 W	695.08	205.00	0.00	0.0	0.0
39		3,900.00	24.00	205.00	100	3761.47	735.76	666.82 S	310.94 W	735.76	205.00	0.00	0.0	0.0
40		4,000.00	24.00	205.00	100	3852.82	776.43	703.69 S	328.13 W	776.43	205.00	0.00	0.0	0.0
41		4,100.00	24.00	205.00	100	3944.18	817.11	740.55 S	345.32 W	817.11	205.00	0.00	0.0	0.0
42		4,200.00	24.00	205.00	100	4035.53	857.78	777.41 S	362.51 W	857.78	205.00	0.00	0.0	0.0
43		4,300.00	24.00	205.00	100	4126.89	898.45	814.27 S	379.70 W	898.45	205.00	0.00	0.0	0.0
44		4,400.00	24.00	205.00	100	4218.24	939.13	851.14 S	396.89 W	939.13	205.00	0.00	0.0	0.0
45		4,500.00	24.00	205.00	100	4309.60	979.80	888.00 S	414.08 W	979.80	205.00	0.00	0.0	0.0
46		4,600.00	24.00	205.00	100	4400.95	1020.47	924.86 S	431.27 W	1020.47	205.00	0.00	0.0	0.0
47		4,700.00	24.00	205.00	100	4492.31	1061.15	961.73 S	448.46 W	1061.15	205.00	0.00	0.0	0.0
48		4,800.00	24.00	205.00	100	4583.66	1101.82	998.59 S	465.65 W	1101.82	205.00	0.00	0.0	0.0
49		4,900.00	24.00	205.00	100	4675.01	1142.49	1035.45 S	482.84 W	1142.49	205.00	0.00	0.0	0.0
50		5,000.00	24.00	205.00	100	4766.37	1183.17	1072.31 S	500.03 W	1183.17	205.00	0.00	0.0	0.0



Company: Wolverine Gas & Oil  
Field: Exploration  
Cty/Blk/Par: Sevier County, UT  
Well Name: WS 20-5  
Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
Magnetic Decl.: \_\_\_\_\_  
Grid Corr.: \_\_\_\_\_  
Total Survey Corr.: \_\_\_\_\_  
Target Info: DRAFT COPY-For APD Purposes Only

Calculation Method Minimum Curvature  
Proposed Azimuth 205  
Depth Reference \_\_\_\_\_  
Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
51		5,100.00	24.00	205.00	100	4857.72	1223.84	1109.18 S	517.22 W	1223.84	205.00	0.00	0.0	0.0
52		5,200.00	24.00	205.00	100	4949.08	1264.52	1146.04 S	534.41 W	1264.52	205.00	0.00	0.0	0.0
53		5,300.00	24.00	205.00	100	5040.43	1305.19	1182.90 S	551.60 W	1305.19	205.00	0.00	0.0	0.0
54		5,400.00	24.00	205.00	100	5131.79	1345.86	1219.77 S	568.79 W	1345.86	205.00	0.00	0.0	0.0
55		5,500.00	24.00	205.00	100	5223.14	1386.54	1256.63 S	585.98 W	1386.54	205.00	0.00	0.0	0.0
56		5,600.00	24.00	205.00	100	5314.50	1427.21	1293.49 S	603.17 W	1427.21	205.00	0.00	0.0	0.0
57		5,700.00	24.00	205.00	100	5405.85	1467.88	1330.35 S	620.35 W	1467.88	205.00	0.00	0.0	0.0
58		5,800.00	24.00	205.00	100	5497.21	1508.56	1367.22 S	637.54 W	1508.56	205.00	0.00	0.0	0.0
59		5,900.00	24.00	205.00	100	5588.56	1549.23	1404.08 S	654.73 W	1549.23	205.00	0.00	0.0	0.0
60		6,000.00	24.00	205.00	100	5679.91	1589.90	1440.94 S	671.92 W	1589.90	205.00	0.00	0.0	0.0
61		6,100.00	24.00	205.00	100	5771.27	1630.58	1477.81 S	689.11 W	1630.58	205.00	0.00	0.0	0.0
62		6,200.00	24.00	205.00	100	5862.62	1671.25	1514.67 S	706.30 W	1671.25	205.00	0.00	0.0	0.0
63		6,300.00	24.00	205.00	100	5953.98	1711.93	1551.53 S	723.49 W	1711.93	205.00	0.00	0.0	0.0
64		6,400.00	24.00	205.00	100	6045.33	1752.60	1588.39 S	740.68 W	1752.60	205.00	0.00	0.0	0.0
65		6,500.00	24.00	205.00	100	6136.69	1793.27	1625.26 S	757.87 W	1793.27	205.00	0.00	0.0	0.0
66		6,600.00	24.00	205.00	100	6228.04	1833.95	1662.12 S	775.06 W	1833.95	205.00	0.00	0.0	0.0
67		6,700.00	24.00	205.00	100	6319.40	1874.62	1698.98 S	792.25 W	1874.62	205.00	0.00	0.0	0.0
68		6,800.00	24.00	205.00	100	6410.75	1915.29	1735.85 S	809.44 W	1915.29	205.00	0.00	0.0	0.0
69		6,900.00	24.00	205.00	100	6502.11	1955.97	1772.71 S	826.63 W	1955.97	205.00	0.00	0.0	0.0
70		7,000.00	24.00	205.00	100	6593.46	1996.64	1809.57 S	843.82 W	1996.64	205.00	0.00	0.0	0.0
71		7,100.00	24.00	205.00	100	6684.81	2037.32	1846.43 S	861.01 W	2037.32	205.00	0.00	0.0	0.0
72		7,200.00	24.00	205.00	100	6776.17	2077.99	1883.30 S	878.20 W	2077.99	205.00	0.00	0.0	0.0
73		7,300.00	24.00	205.00	100	6867.52	2118.66	1920.16 S	895.39 W	2118.66	205.00	0.00	0.0	0.0
74		7,400.00	24.00	205.00	100	6958.88	2159.34	1957.02 S	912.57 W	2159.34	205.00	0.00	0.0	0.0
75		7,500.00	24.00	205.00	100	7050.23	2200.01	1993.89 S	929.76 W	2200.01	205.00	0.00	0.0	0.0



Company: Wolverine Gas & Oil  
Field: Exploration  
Cty/Blk/Par: Sevier County, UT  
Well Name: WS 20-5  
Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
Magnetic Decl.: \_\_\_\_\_  
Grid Corr.: \_\_\_\_\_  
Total Survey Corr.: \_\_\_\_\_  
Target Info: DRAFT COPY-For APD Purposes Only

Calculation Method Minimum Curvature  
Proposed Azimuth 205  
Depth Reference \_\_\_\_\_  
Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
76		7,600.00	24.00	205.00	100	7141.59	2240.68	2030.75 S	946.95 W	2240.68	205.00	0.00	0.0	0.0
77		7,700.00	24.00	205.00	100	7232.94	2281.36	2067.61 S	964.14 W	2281.36	205.00	0.00	0.0	0.0
78		7,800.00	24.00	205.00	100	7324.30	2322.03	2104.47 S	981.33 W	2322.03	205.00	0.00	0.0	0.0
79		7,900.00	24.00	205.00	100	7415.65	2362.70	2141.34 S	998.52 W	2362.70	205.00	0.00	0.0	0.0
80		8,000.00	24.00	205.00	100	7507.01	2403.38	2178.20 S	1015.71 W	2403.38	205.00	0.00	0.0	0.0
81		8,100.00	24.00	205.00	100	7598.36	2444.05	2215.06 S	1032.90 W	2444.05	205.00	0.00	0.0	0.0
82		8,200.00	24.00	205.00	100	7689.71	2484.73	2251.93 S	1050.09 W	2484.73	205.00	0.00	0.0	0.0
83		8,300.00	24.00	205.00	100	7781.07	2525.40	2288.79 S	1067.28 W	2525.40	205.00	0.00	0.0	0.0
84		8,400.00	24.00	205.00	100	7872.42	2566.07	2325.65 S	1084.47 W	2566.07	205.00	0.00	0.0	0.0
85		8,500.00	24.00	205.00	100	7963.78	2606.75	2362.51 S	1101.66 W	2606.75	205.00	0.00	0.0	0.0
86		8,600.00	24.00	205.00	100	8055.13	2647.42	2399.38 S	1118.85 W	2647.42	205.00	0.00	0.0	0.0
87		8,700.00	24.00	205.00	100	8146.49	2688.09	2436.24 S	1136.04 W	2688.09	205.00	0.00	0.0	0.0
88		8,800.00	24.00	205.00	100	8237.84	2728.77	2473.10 S	1153.23 W	2728.77	205.00	0.00	0.0	0.0
89		8,900.00	24.00	205.00	100	8329.20	2769.44	2509.97 S	1170.42 W	2769.44	205.00	0.00	0.0	0.0
90		9,000.00	24.00	205.00	100	8420.55	2810.11	2546.83 S	1187.61 W	2810.11	205.00	0.00	0.0	0.0
91		9,100.00	24.00	205.00	100	8511.91	2850.79	2583.69 S	1204.80 W	2850.79	205.00	0.00	0.0	0.0
92		9,200.00	24.00	205.00	100	8603.26	2891.46	2620.55 S	1221.98 W	2891.46	205.00	0.00	0.0	0.0
93		9,300.00	24.00	205.00	100	8694.61	2932.14	2657.42 S	1239.17 W	2932.14	205.00	0.00	0.0	0.0
94		9,400.00	24.00	205.00	100	8785.97	2972.81	2694.28 S	1256.36 W	2972.81	205.00	0.00	0.0	0.0
95		9,500.00	24.00	205.00	100	8877.32	3013.48	2731.14 S	1273.55 W	3013.48	205.00	0.00	0.0	0.0
96		9,600.00	22.00	205.00	100	8969.37	3052.55	2766.55 S	1290.07 W	3052.55	205.00	2.00	-2.0	0.0
97		9,700.00	20.50	205.00	100	9062.57	3088.80	2799.40 S	1305.38 W	3088.80	205.00	1.50	-1.5	0.0
98		9,800.00	19.00	205.00	100	9156.68	3122.59	2830.03 S	1319.66 W	3122.59	205.00	1.50	-1.5	0.0
99		9,900.00	17.50	205.00	100	9251.65	3153.90	2858.41 S	1332.90 W	3153.90	205.00	1.50	-1.5	0.0
100		10,000.00	16.00	205.00	100	9347.40	3182.72	2884.53 S	1345.08 W	3182.72	205.00	1.50	-1.5	0.0



Company: Wolverine Gas & Oil  
 Field: Exploration  
 Cty/Blk/Par: Sevier County, UT  
 Well Name: WS 20-5  
 Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
 Magnetic Decl.: \_\_\_\_\_  
 Grid Corr.: \_\_\_\_\_  
 Total Survey Corr.: \_\_\_\_\_  
 Target Info: DRAFT COPY-For APD Purposes Only

Calculation Method Minimum Curvature  
 Proposed Azimuth 205  
 Depth Reference \_\_\_\_\_  
 Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
101		10,100.00	14.50	205.00	100	9443.88	3209.02	2908.36 S	1356.19 W	3209.02	205.00	1.50	-1.5	0.0
102		10,200.00	13.00	205.00	100	9541.01	3232.79	2929.90 S	1366.24 W	3232.79	205.00	1.50	-1.5	0.0
103		10,300.00	11.50	205.00	100	9638.73	3254.01	2949.13 S	1375.20 W	3254.01	205.00	1.50	-1.5	0.0
104		10,400.00	10.00	205.00	100	9736.97	3272.66	2966.04 S	1383.09 W	3272.66	205.00	1.50	-1.5	0.0
105		10,500.00	8.50	205.00	100	9835.67	3288.74	2980.61 S	1389.88 W	3288.74	205.00	1.50	-1.5	0.0
106		10,600.00	7.00	205.00	100	9934.75	3302.22	2992.83 S	1395.58 W	3302.22	205.00	1.50	-1.5	0.0
107		10,700.00	5.50	205.00	100	10034.16	3313.11	3002.69 S	1400.18 W	3313.11	205.00	1.50	-1.5	0.0
108		10,800.00	4.00	205.00	100	10133.81	3321.39	3010.20 S	1403.68 W	3321.39	205.00	1.50	-1.5	0.0
109		10,900.00	2.50	205.00	100	10233.65	3327.06	3015.34 S	1406.07 W	3327.06	205.00	1.50	-1.5	0.0
110		11,000.00	1.00	205.00	100	10333.60	3330.11	3018.10 S	1407.37 W	3330.11	205.00	1.50	-1.5	0.0
111		11,100.00	0.00	205.00	100	10433.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	1.00	-1.0	0.0
112		11,200.00	0.00	205.00	100	10533.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
113		11,300.00	0.00	205.00	100	10633.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
114		11,400.00	0.00	205.00	100	10733.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
115		11,500.00	0.00	205.00	100	10833.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
116		11,600.00	0.00	205.00	100	10933.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
117		11,700.00	0.00	205.00	100	11033.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
118		11,800.00	0.00	205.00	100	11133.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
119		11,900.00	0.00	205.00	100	11233.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
120		12,000.00	0.00	205.00	100	11333.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
121		12,100.00	0.00	205.00	100	11433.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
122		12,200.00	0.00	205.00	100	11533.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
123		12,300.00	0.00	205.00	100	11633.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
124		12,400.00	0.00	205.00	100	11733.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
125		12,500.00	0.00	205.00	100	11833.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0



Company: Wolverine Gas & Oil  
Field: Exploration  
Cty/Blk/Par: Sevier County, UT  
Well Name: WS 20-5  
Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
Magnetic Decl.: \_\_\_\_\_  
Grid Corr.: \_\_\_\_\_  
Total Survey Corr.: \_\_\_\_\_  
Target Info: DRAFT COPY-For APD Purposes Only  
Calculation Method Minimum Curvature  
Proposed Azimuth 205  
Depth Reference \_\_\_\_\_  
Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
126		12,600.00	0.00	205.00	100	11933.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
127		12,700.00	0.00	205.00	100	12033.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
128		12,800.00	0.00	205.00	100	12133.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
129		12,900.00	0.00	205.00	100	12233.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
130		13,000.00	0.00	205.00	100	12333.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
131		13,100.00	0.00	205.00	100	12433.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
132		13,200.00	0.00	205.00	100	12533.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
133		13,300.00	0.00	205.00	100	12633.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
134		13,400.00	0.00	205.00	100	12733.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
135		13,500.00	0.00	205.00	100	12833.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
136		13,600.00	0.00	205.00	100	12933.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
137		13,700.00	0.00	205.00	100	13033.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
138		13,800.00	0.00	205.00	100	13133.59	3330.98	3018.90 S	1407.73 W	3330.98	205.00	0.00	0.0	0.0
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Company: Wolverine Gas & Oil  
Field: Exploration  
Cty/Blk/Par: Sevier County, UT  
Well Name: WS 20-5  
Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
Magnetic Decl.: \_\_\_\_\_  
Grid Corr.: \_\_\_\_\_  
Total Survey Corr.: \_\_\_\_\_  
Target Info: DRAFT COPY-For APD Purposes Only

Calculation Method Minimum Curvature  
Proposed Azimuth 205  
Depth Reference \_\_\_\_\_  
Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			

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CONFIDENTIAL



Company: Wolverine Gas & Oil  
Field: Exploration  
Cty/Blk/Par: Sevier County, UT  
Well Name: WS 20-5  
Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
Magnetic Decl.: \_\_\_\_\_  
Grid Corr.: \_\_\_\_\_  
Total Survey Corr.: \_\_\_\_\_  
Target Info: DRAFT COPY-For APD Purposes Only

Calculation Method Minimum Curvature  
Proposed Azimuth 205  
Depth Reference \_\_\_\_\_  
Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			

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CONFIDENTIAL



Company: Wolverine Gas & Oil  
Field: Exploration  
Cty/Blk/Par: Sevier County, UT  
Well Name: WS 20-5  
Rig: \_\_\_\_\_

Job Number: \_\_\_\_\_  
Magnetic Decl.: \_\_\_\_\_  
Grid Corr.: \_\_\_\_\_  
Total Survey Corr.: \_\_\_\_\_  
Target Info: DRAFT COPY-For APD Purposes Only

Calculation Method Minimum Curvature  
Proposed Azimuth 205  
Depth Reference \_\_\_\_\_  
Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			

201  
202  
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CONFIDENTIAL

## **SURFACE USE PLAN OF OPERATIONS**

*For inclusion with Application for Permit to Drill*

**Name of Operator:** Wolverine Gas and Oil Company of Utah, LLC  
**Address:** 1140 N Centennial Park Drive  
Richfield, Utah 84701

### **Wolverine State 20-5**

**Surface Well Location:** 342' FNL & 1901' FWL, being in NE4/NW4  
Section 20, T23S, R1W, SLB&M  
Sevier County, Utah

**Bottom Hole Location:** 2291' FSL & 678' FWL, being in NW4/SW4  
Section 20, T23S, R1W, SLB&M  
Sevier County, Utah

**Access Road Location:** Access road to be an approximate 300' extension of the existing driveway to Wolverine's "D Pad."

State and fee surface use is not required for construction and drilling of the referenced well. BLM is the surface and mineral owner at the drill pad site. The State of Utah is the mineral owner at the bottom hole location. Federal surface use is being requested through the BLM – Richfield Field Office in conjunction with the UDOGM Application for Permit to Drill (APD).

The proposed well is to be drilled from a pad to be constructed adjacent to the existing drill pad (hereinafter called the D1 Pad) of the Wolverine Federal 20-4 well (and four other wells) and will require additional surface disturbance. Authority to construct the pad expansion (hereinafter called the D2 Pad) will be through the Decision Notice executed by BLM, Richfield Field Office.

#### ***Existing Roads:***

The vicinity map in the APD packet shows the proposed well location and its proximity to Highway 24. The proposed well surface location is about 5 miles southeast of Sigurd, Utah.

**Driving directions:** From Interstate 70, take Exit #48 and go south to Sigurd, Utah, on SR 24. From Sigurd, continue southerly on SR 24 approximately 5 miles, to the third well pad (the D1 Pad) on the right side of the road past the CPF (Central Production Facility). Follow driveway past the D1 Pad onto the D2 Pad.

#### ***Access Roads to be Constructed and Reconstructed:***

The proposed access road will require the construction of an extension of the existing D1 Pad driveway. The extension is beyond the right-of-way boundary for Highway 24 and will not require approval from UDOT. Authority for construction/extension of the driveway will be included in the Decision Notice from BLM. The extended driveway will have a travel surface 30' in width, being about 300' in length.

See Vicinity Map for project location. See Site Plan sheets SP-01 and SP-02, and Cross Section sheet CS-01 for pad layout and dimensions.

Road construction, operation and maintenance will be in compliance with the terms and conditions of the Conditions of Approval, the American Association of State Highway and Transportation (AASHTO) safety standards, and will meet criteria for the Manual of Uniform Traffic Control Devices (MUTCD) manual for signs, if applicable.

Energy dissipating structures and silt fences will be utilized to minimize erosion that may result from the road

construction.

All driveways will be maintained and kept in good repair during all phases of operation. Vehicle operators will obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.

***Location of Existing Wells within a one-mile radius :***

All wells located within a one-mile radius of the proposed wells are listed below:

Well	Type	Surface Location *	Bottom Hole Location *
KMR 17-1	Producer-oil	SE4NW4 Section 17	SE4NW4 Section 17
WF 17-2	Producer-oil	SE4SW4 Section 17	SE4SW4 Section 17
WF 17-3	Producer-oil	SE4NW4 Section 17	NW4SW4 Section 17
WF 17-4	Producer-oil	SE4NW4 Section 17	NW4SE4 Section 17
WF 17-5	Producer-oil	SE4NW4 Section 17	SE4NE4 Section 17
WF 17-6	Producer-oil	SE4NW4 Section 17	NW4NE4 Section 17
KMR 17-7	Producer-oil	SE4NW4 Section 17	SW4NW4 Section 17
WF 17-8	Producer-oil	NE4SW4 Section 17	NE4SW4 Section 17
WF 17-9	Producer-oil	NE4SW4 Section 17	SW4SW4 Section 17
WS 17-10	Producer-oil	NE4NW4 Section 20	SW4SE4 Section 17
WF 17-11	Producer-oil	SE4NW4 Section 17	SE4NE4 Section 17
WF 17-12	Producer-oil	SE4NW4 Section 17	SW4NE4 Section 17
WF 17-13	Producer-oil	SE4NW4 Section 17	NW4NE4 Section 17
KMR 17-14	Producer-oil	SE4NW4 Section 17	NE4NW4 Section 17
WF 18-1	Producer-oil	SE4SW4 Section 17	SE4SE4 Section 18
WF 19-1	Producer-oil	SE4SW4 Section 17	NE4NE4 Section 19
WF 19-2	Producer-oil	NE4NW4 Section 20	NE4SE4 Section 19
WF 19-3	Producer-oil	NE4NW4 Section 19	NW4SE4 Section 19
WF 19-4	Producer-oil	NE4NW4 Section 19	NE4NE4 Section 19
WF 20-1	Producer-oil	SE4SW4 Section 17	NW4NW4 Section 20
WF 20-2	Producer-oil	NE4NW4 Section 20	SW4NW4 Section 20
WS 20-3	Producer-oil	NE4NW4 Section 20	SE4NW4 Section 20
WF 20-4	Producer-oil	NE4NW4 Section 20	NE4NW4 Section 20
WF 8-1	Dry Hole-plugged	SE4NW4 Section 17	SE4SE4 Section 8
SWD-1	Disposal-active	SW4SW4 Section 8	SW4SW4 Section 8
Water well	Culinary water supply	SW4NE4 Section 20	SW4NE4 Section 20

\*All wells are located in T23S-R1W

***Location of Planned Wells:***

At present there are no planned wells that have approval to be drilled within a one-mile radius of the proposed well.

***Location of Existing and/or Proposed Facilities if Well is Productive:***

(a) *On well pad* – A temporary testing facility may be constructed on this location in the event drilling is successful, consisting of treater/separator, tanks and related components. The facility would be surrounded by a dike of sufficient capacity to contain the storage capacity of the largest tank. All loading lines and valves would be located inside the berm surrounding the tank battery.

(b) *Off well pad* – At present no off-well-pad facilities are planned.

***Location and Type of Water Supply (Rivers, Creeks, Lakes, Ponds and Wells):***

The Operator intends to purchase water from the Town of Sigurd, which was the supply for drilling the Wolverine Federal 19-3 and 19-4 wells. Source of water is the town springs near Kings Meadow Reservoir. Water will be trucked to the reserve pit from a fire hydrant on the south end of town, as directed by the Town of Sigurd. Should additional water sources be pursued they will be properly permitted through the State of Utah – Division of Water Rights. UDOGM will be notified of any changes in water supply.

**Construction Materials:**

Natural earth materials used for fill on the well pad will be taken from cuts made in construction of the pad. Imported granular borrow from an approved source will be applied to the surface of the well pad and access road where deemed necessary. No construction materials will be removed from federal lands.

**Methods for Handling Waste Disposal:**

The reserve pit will be used for the disposal of waste mud and drill cuttings. All borehole fluids and salts will be contained in the reserve pit. It will be located in cut material and will be lined with 12 mil minimum thickness plastic nylon reinforced liner material. The liner will overlay a felt liner pad only if sharp rock edges result from excavation. The pit liner will overlap the top of the pit walls and be covered with dirt and/or rocks to hold it in place. No trash, scrap pipe, etc. that could puncture the liner will be disposed of in the pit. Pit walls will be sloped no greater than 2:1. A minimum 2-foot freeboard will be maintained in the pit at all times during the drilling and completion operations. After evaporation of fluids, back-fill of sub-soil and compaction to prevent settling will occur within 90 days of cessation of pit use. If necessary, any remaining fluids will be pumped out of the pit and transported off site.

No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completion of the well. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completion of the well.

Wastewater will not be discharged on the surface at this site and the drilling of the well will not require a wastewater management plan.

All rubbish and debris will be kept in containers on the well site, and will be hauled to an approved disposal site upon completion of drilling operations and as needed during such operations. There will be no chemical disposal of any type.

Self-contained, portable toilets will be used for human waste, and the waste will be disposed at an approved human waste disposal facility. Sanitation will comply with local and state regulations.

**Ancillary Facilities:**

No ancillary facilities are anticipated at this time.

**Well Site Layout:**

Pad Location and Layout Drawings in the APD packet show the proposed well site layout including location of the reserve pit and access road onto the pad, turnaround areas, parking areas, living facilities, soil material stockpiles, and the orientation of the rig with respect to the pad and other facilities. Cross section sheets in said packet show cuts and fills required for construction, and their relationship to topography. As detailed above under Methods for Handling Waste Disposal, the reserve pit will be lined and appropriate measures as described above will be taken to prevent leakage. The pit will be fenced on three sides during drilling operations and then the fourth side will be immediately fenced when the rig is moved off location.

The pad and road designs would be consistent with BLM specifications.

A pre-construction meeting with responsible company representative and contractors will be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road will be construction-staked (centerline and exterior boundaries) prior to this meeting.

All surface disturbing activities will be supervised by a qualified, responsible company representative who is aware of the terms and conditions of approval from the BLM, and UDOGM under the approved APD.

All cut and fill slopes will be such that stability can be maintained for the life of the activity.

The stockpiled topsoil (first 8 inches or maximum available) will be isolated in a berm around the well pad. Topsoil will be stockpiled for reclamation in such a way as to prevent soil loss and contamination.

Water spraying may be implemented if necessary to minimize dust.

***Plans for Reclamation of the Surface:***

**(For further specifications see Addendum to Surface Plan of Operations, attached hereto)**

Edges of the access road and stockpiled topsoil will be seeded the first fall.

Interim Reclamation: In the event production is achieved the Operator will perform interim reclamation of the site. Interim reclamation will consist of reclamation of the reserve pit and reclamation of that portion of the well pad not needed for ongoing operations. After evaporation of fluids, the pit will be back-filled with sub-soil and/or rock and compacted to prevent settling. The pit area will be surfaced with gravel to render it a usable part of the well pad. All portions of the pad no longer necessary for well workover, testing or treating will be contoured to match the surrounding terrain to the best extent practicable. Stockpiled topsoil will be evenly distributed thereon, scarified and seeded as per BLM conditions of approval.

Final Reclamation: In the event the well is a dry hole, or at such time that all production ceases and the well has been plugged and abandoned, the Operator will perform final reclamation of the site. Final reclamation will consist of reclamation of the reserve pit, the well pad and the new-construction portion of the lease road as it crosses BLM land.

Any accumulation of hydrocarbons in the reserve pit will be removed and recovered for sale unless it is determined by the authorized officer to be waste oil. All waste oil will be disposed of properly at approved facilities. The portion of the reserve pit liner which is exposed above the cuttings will be cut and removed from the site and disposed in an authorized landfill. After evaporation of fluids, the pit will be back-filled with subsoil and/or rock from the reserve pit stockpile and compacted to prevent settling.

Road base material used in the construction of the access road and pad will be removed from the site and disposed in a proper manner. If the reserve pit has adequate capacity, then some or all of the road base material may be buried in the reserve pit, provided that the granular is not contaminated by oil or other waste materials. The new construction portion of the access road will be contoured using an excavator or similar equipment, rather than simply ripping the surface.

Subsoil from the portions of the well pad that are fill will be pulled up onto the pad in order to reestablish the original slope to the best extent possible. The portions that are cut will be filled to match the original slope of the land to the best extent possible. Topsoil from the stockpile will then be evenly distributed over the entire impacted area, including the new-construction portion of the access road. The entire impacted area will be scarified and seeded in late fall, using the seed mix and methods described in BLM conditions of approval. Final reclamation will take place within 180 days after plugging date of the last well on site, depending on weather, season and other extenuating circumstances.

During the life of the project and until the site is released from liability for reclamation, the project will be inspected at least annually for noxious weeds. If invasive noxious weeds are found, the weeds will be treated to eliminate further reproduction, and treatment shall continue until the weeds have been eradicated. If noxious weeds are found, the BLM will be notified of their occurrence.

***Surface Ownership:***

The surface of the proposed well site and the access road is federally owned and is administered by the Bureau of Land Management, United States Department of Interior.

***Other Information:***

Heavy equipment used to construct and rehabilitate the well pad and access road will be cleaned and/or sprayed to remove any noxious or invasive weeds and seeds, prior to entering to the project site. Any other equipment and vehicles that have been used in other locations where noxious weeds or seeds could have attached to the equipment will also be sprayed and/or cleaned.

All equipment and vehicles will be confined to the access roads and well pad.

Western Land Services has conducted a Class III archeological survey and has submitted same under separate cover



to the appropriate agencies.

Glen Nebeker, of Jones & DeMille Engineering, will prepare the required NEPA document for the proposed operation.

Rocky Mountain Environmental Research prepared a sensitive and endemic plant study for the D1 Pad that also covered the area to be impacted by the D2 Pad. The study can be updated, if required.

No stream alteration or drainage crossings are involved that require additional State or Federal approval.

All permanent structures, including pumping units, constructed or installed will be painted a flat, non-reflective color as described on page 40 of the Gold Book (Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, 4<sup>th</sup> Edition 2006). Permanent structures are defined as being on location for six months or longer. Facilities required to comply with Occupational Safety and Health Act (OSHA) shall be excluded.

Fire suppression equipment will be available to suppress any wildfires caused by construction or related activities. In the event of a wildfire the Richfield Interagency Fire Center (435) 896-8404 will be notified.

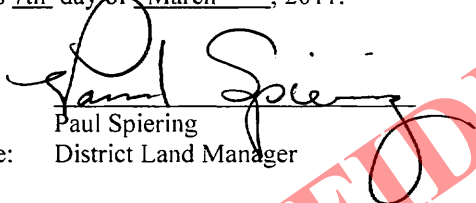
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## Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I, or someone under my direct supervision, have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 7th day of March, 2011.

Signature:



Paul Spiering

Position Title:

District Land Manager

Address:

Wolverine Gas and Oil Company of Utah, LLC  
1140 N Centennial Park Drive  
Richfield, Utah 84701

Telephone:

435-896-1943

Field representative: Charlie Irons

Address:

Wolverine Gas and Oil Company of Utah, LLC  
1140 N Centennial Park Drive  
Richfield, Utah 84701

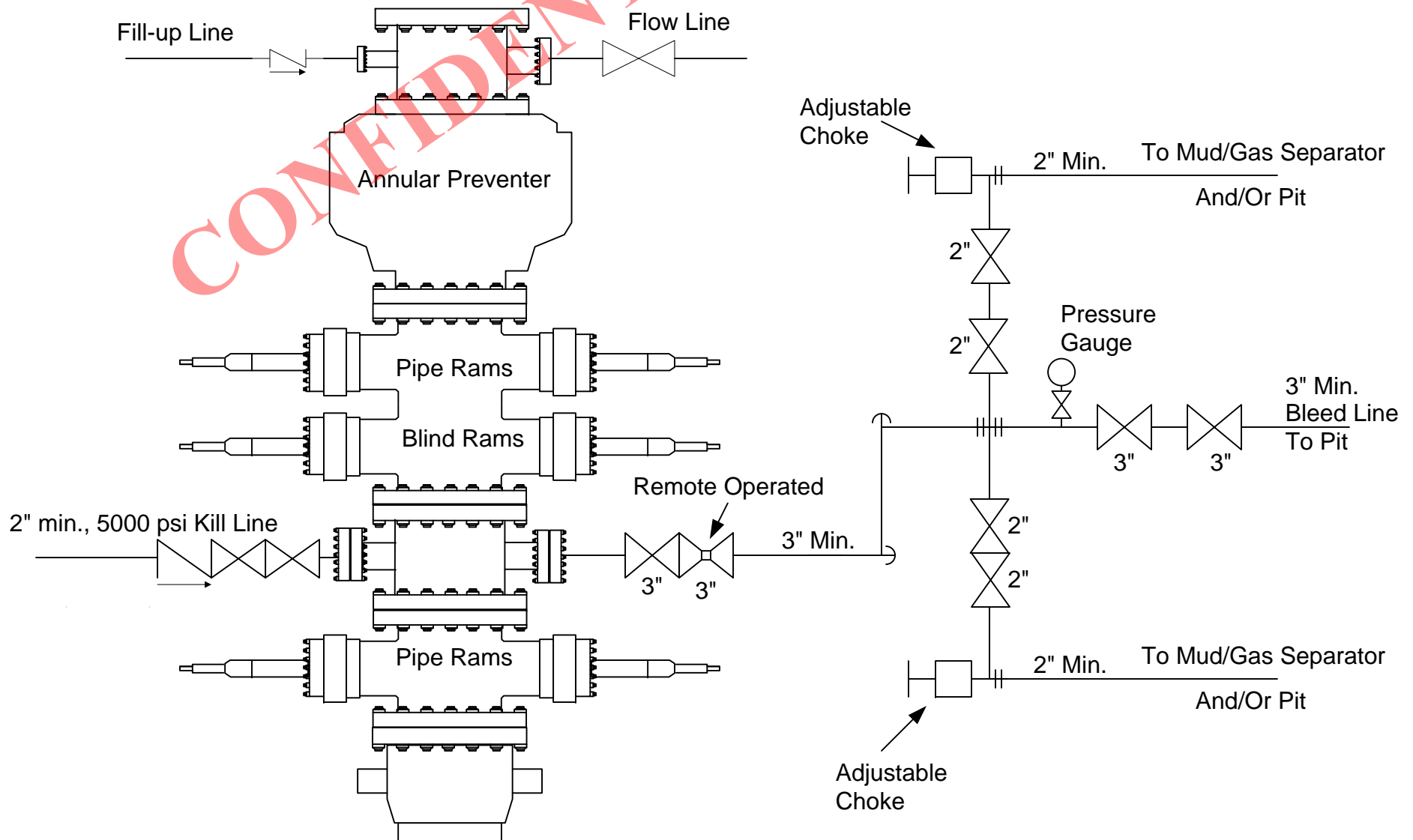
Telephone:

435-896-1943

*Agents not directly employed by the operator must submit a letter from the operator authorizing that agent to act or file this application on their behalf.*

# 5k BOPE Schematic

(Not to Scale)



# WOLVERINE GAS AND OIL COMPANY OF UTAH, LLC

Energy Exploration in Partnership with the Environment



March 4, 2011

Diana Mason  
Permitting—Petroleum Technician  
Utah Division of Oil, Gas and Mining  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

Re: Application for Permit to Drill (Utah ePermit #3510)  
Wolverine Gas and Oil Company of Utah, LLC  
**Wolverine State 20-5**  
Exception location/ directional drilling letter

Dear Mrs. Mason:

Wolverine Gas and Oil Company of Utah, LLC (Wolverine) hereby submits this letter with the attached plats, as part of the *Application for Permit to Drill* (APD) for the referenced well:

- R649-3-2 Exception Plat showing proposed BHL;
- R649-3-11 Directional Drilling Application Plat showing proposed BHL;

The Town of Sigurd, Utah will be the source for water during drilling and completion operations on this proposed well. The surface at the planned drill site is federally owned, administered by the Bureau of Land Management.

The proposed location is within 460' of a drilling unit boundary, so an exception to spacing (R649-3-2) is hereby requested for the well based on restrictive topography relative to and the need to drill at an optimum structural location. Wolverine is the only owner and operator within 460' of the proposed well location.

This letter and the accompanying plats are also intended to serve as an application for directionally drilling the well per R649-3-11. Wolverine is the owner of all oil and gas within 460 feet from all points along the intended wellbore for the well. Information relating to R649-3-11 is as follows:

Wolverine Gas and Oil Company of Utah, LLC  
1140 N Centennial Park Drive, Richfield, Utah 84701. Phone: 435-896-1943, Fax: 435-893-2134

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Operator: Wolverine Gas and Oil Company of Utah, LLC

Address: 1140 N Centennial Park Drive  
Richfield, Utah 84701

Well: Wolverine State 20-5

Field: Covenant

Reservoir: Navajo

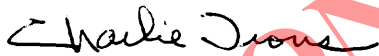
County: Sevier

Reason: Restrictive topography and to minimize surface impact

Please accept this letter as Wolverine's written request for confidential treatment of all information contained in and relating to this application and proposed well.

Thank you for consideration of this application. Please feel free to contact me or Paul Spiering of this office if you have any questions or need additional information.

Sincerely,

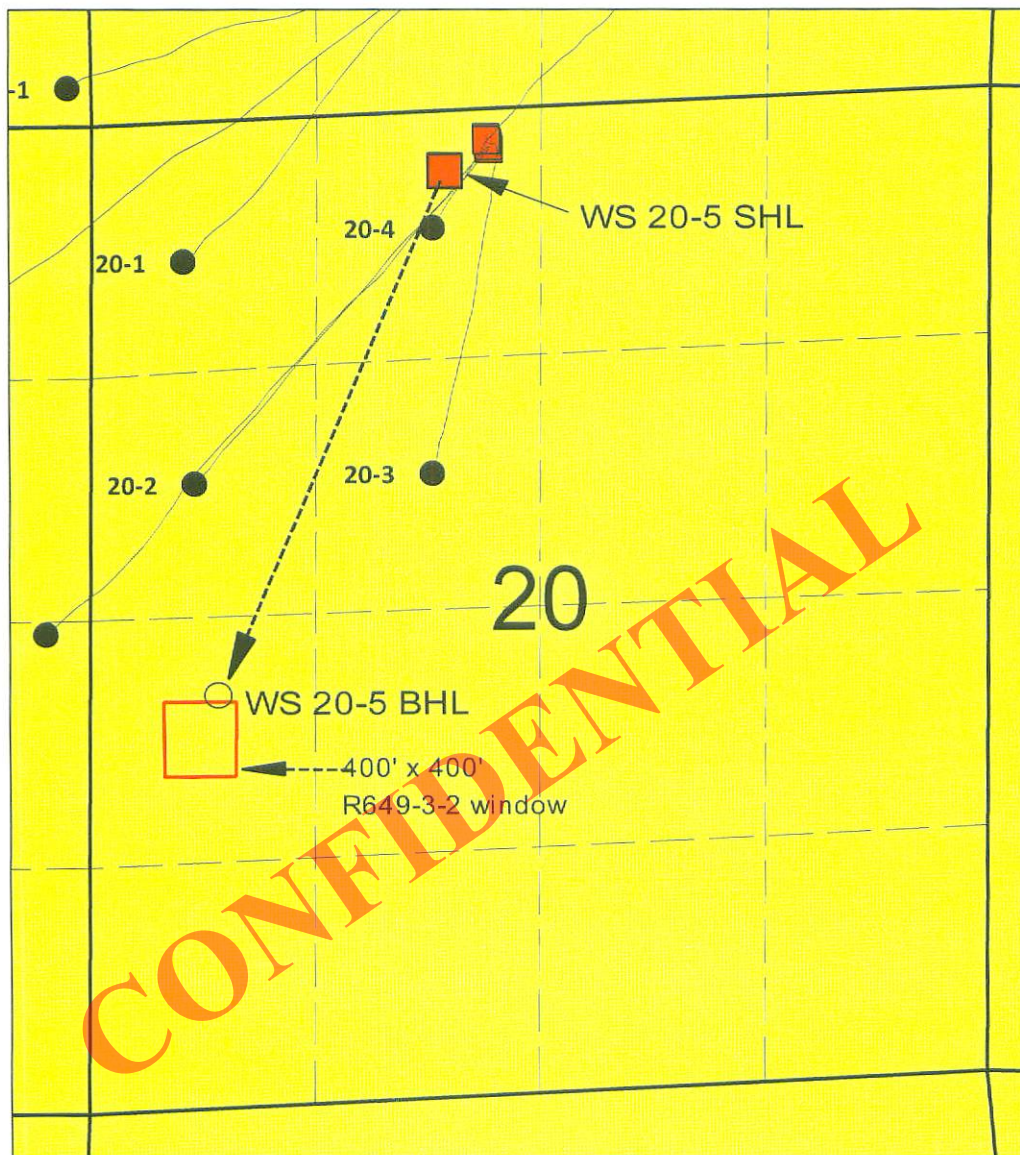


Charlie Irons  
Senior Landman

Wolverine Gas and Oil Company of Utah, LLC  
1140 N Centennial Park Drive. Richfield, Utah 84701. Phone: 435-896-1943, Fax: 435-893-2134

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## Wolverine State 20-5 Well Location

SHL: 342' FNL, 1901' FWL, Sec. 20, T23S, R1W, Sevier Co., UT

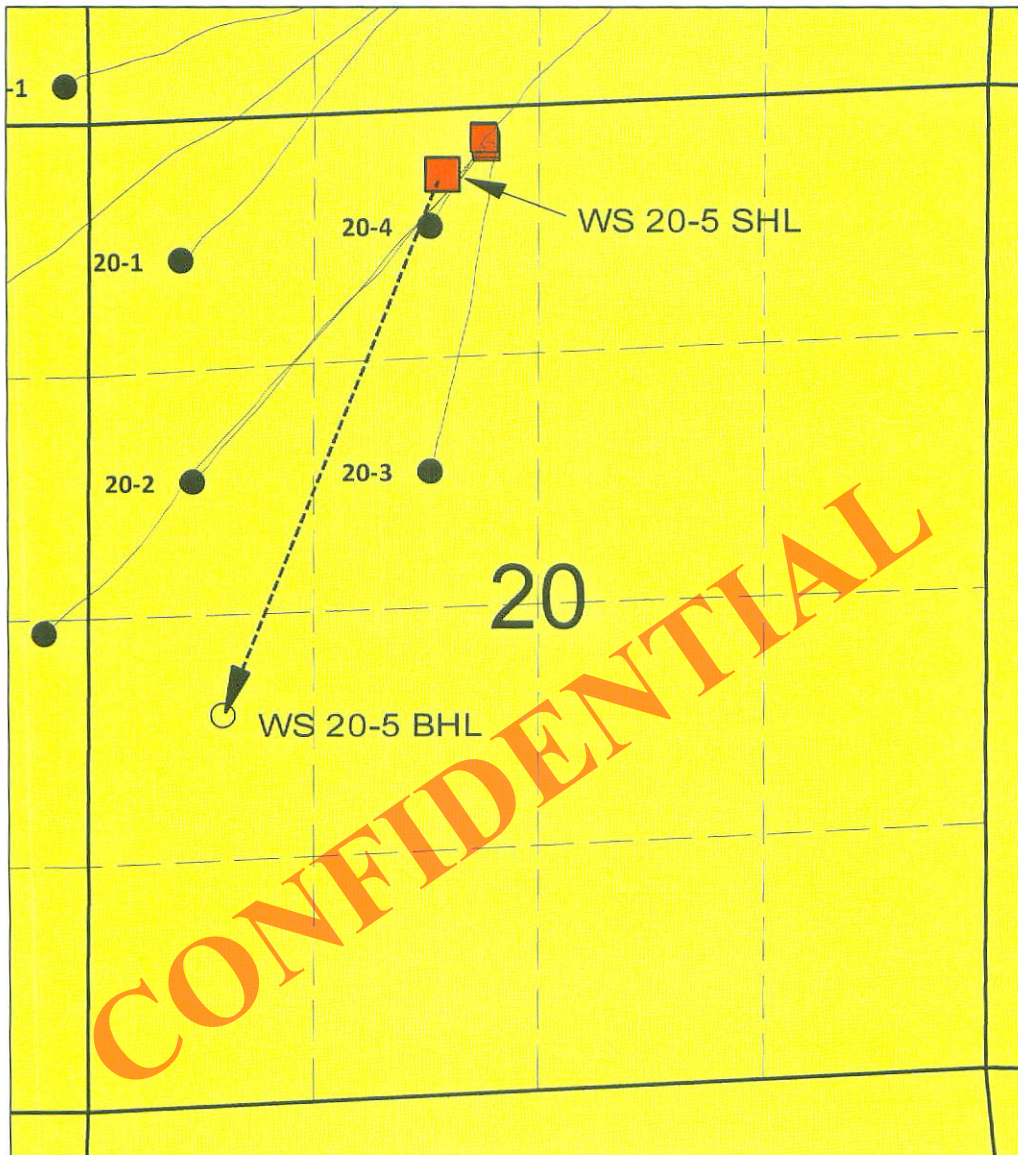
BHL: 2291' FSL, 678' FWL, Sec. 20, T23S, R1W, Sevier Co., UT

- Proposed BHL
- Proposed SHL
- Wolverine Lease

1:12000  
 1000 0 1000 ft  
 1 inch = 1000 feet

	<p><b>WOLVERINE Operating Company of Utah, LLC</b>          (Operator)  <i>Energy Exploration in Partnership with the Environment</i></p> <p>ONE RIVERFRONT PLAZA          55 CAMPAU, N.W.          GRAND RAPIDS, MI 49503-2616          (616) 458-1150</p>
<p>Exception Location and Ownership Plat          (R649-3-2)</p>	
<p>Date: 3/3/2011</p>	<p>Author: MLutz          Filename: Document in MJL 03012011 Cov Splay.gmp</p>



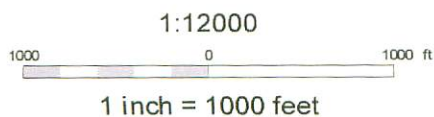



## Wolverine State 20-5 Well Location

SHL: 342' FNL, 1901' FWL, Sec. 20, T23S, R1W, Sevier Co., UT

BHL: 2291' FSL, 678' FWL, Sec. 20, T23S, R1W, Sevier Co., UT

- Proposed BHL
- Proposed SHL
- Wolverine Lease



	<p><b>WOLVERINE Operating Company of Utah, LLC</b> (Operator) <i>Energy Exploration in Partnership with the Environment</i></p> <p>ONE RIVERFRONT PLAZA 55 CAMPAU, N.W. GRAND RAPIDS, MI 49503-2616 (616) 458-1150</p>
<p align="center"><b>Directional Drilling Application Plat</b> (R649-3-11)</p>	
<p>Date: 3/3/2011</p>	<p>Author: MLutz Filename: Document in MJL 03012011 Cov Splay.gmp</p>



# WOLVERINE GAS AND OIL COMPANY OF UTAH, LLC

Energy Exploration in Partnership with the Environment



March 7, 2011

Stan Andersen  
Supervisory—Natural Resource Specialist  
Bureau of Land Management  
Richfield Field Office  
150 East 900 North  
Richfield, Utah 84701

Re: Proposal for Surface Use  
Wolverine Gas and Oil Company of Utah, LLC  
Wolverine State 20-5  
Surface location: T23S, R1W, SLM, Section 20: NE4NW4

Dear Stan:

Wolverine Gas and Oil Company of Utah, LLC (Wolverine) hereby proposes to drill the above referenced well from a location on BLM administered surface and minerals in the NE4NW4 of Section 20, T23S, R1W. The well is to be directionally drilled to a bottom hole location in the NW4SW4 of Section 20, on minerals owned by the State of Utah. The proposed location is to be an expansion of the D Pad, from which five wells have been previously drilled: the Wolverine State 17-10 and 20-3, Wolverine Federal 19-2, 20-2 and 20-4.

The well pad, henceforward to be called the D2 Pad, would be situated adjacent to and partly overlying the existing pad—which we will now refer to as the D1 Pad. Construction will require disturbance of native ground and will be confined to the valley floor. Details of construction are in the materials submitted herewith.

Wolverine submitted a cultural study in permitting the D1 Pad that covered the D2 Pad impacted area. The plant study that was conducted for the D1 Pad covered the same area. We plan to contract Glen Nebeker, of Jones & DeMille Engineering, to prepare the NEPA document that will be required for this operation.

Please see the following attachments:

- Surface Use Plan of Operations, with addendum clarifying reclamation
- Copy of APD submitted to the Utah Division of Oil, Gas and Mining
- Drawing packet showing details of construction

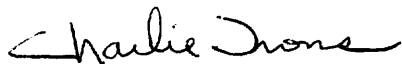
Wolverine Gas and Oil Company of Utah, LLC  
1140 N Centennial Park Drive, Richfield, Utah 84701. Phone: 435-896-1943, Fax: 435-893-2134

**RECEIVED** Mar. 09, 2011

Please accept this letter as Wolverine's written request for confidential treatment of all information contained in and relating to this application and proposed well.

Thank you for consideration of this proposal. Please feel free to contact me if you have any questions or need additional information.

Sincerely,




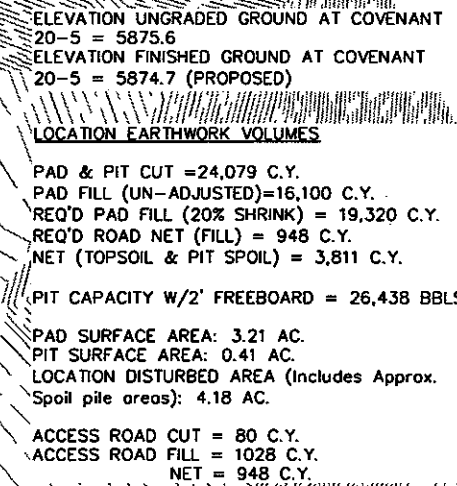
Charlie Irons  
Senior Landman

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Wolverine Gas and Oil Company of Utah, LLC  
1140 N Centennial Park Drive, Richfield, Utah 84701. Phone: 435-896-1943, Fax: 435-893-2134

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[illegible]

**Jones & DeMille Engineering, Inc.**  
 CIVIL ENGINEERING—SURVEYING—TESTING  
 Richfield & Price Utah  
[www.jonesanddemille.com](http://www.jonesanddemille.com)

Wolverine Gas & Oil Co. of Utah, LLC
WOLVERINE STATE 20-5

SEVIER  
COUNTY  
SHEET NO. SP-01


DESIGN:	•	•	•	CHECK:	•	•	•	REVIEW
APPROVAL RECOMM:	DATE _____			DRAWN	B. L.	02-11	CHECK	DATE: •
APPROVED:	_____			QUANT:	•	•	CHECK:	BY: •
	DATE _____							

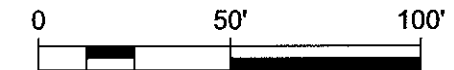
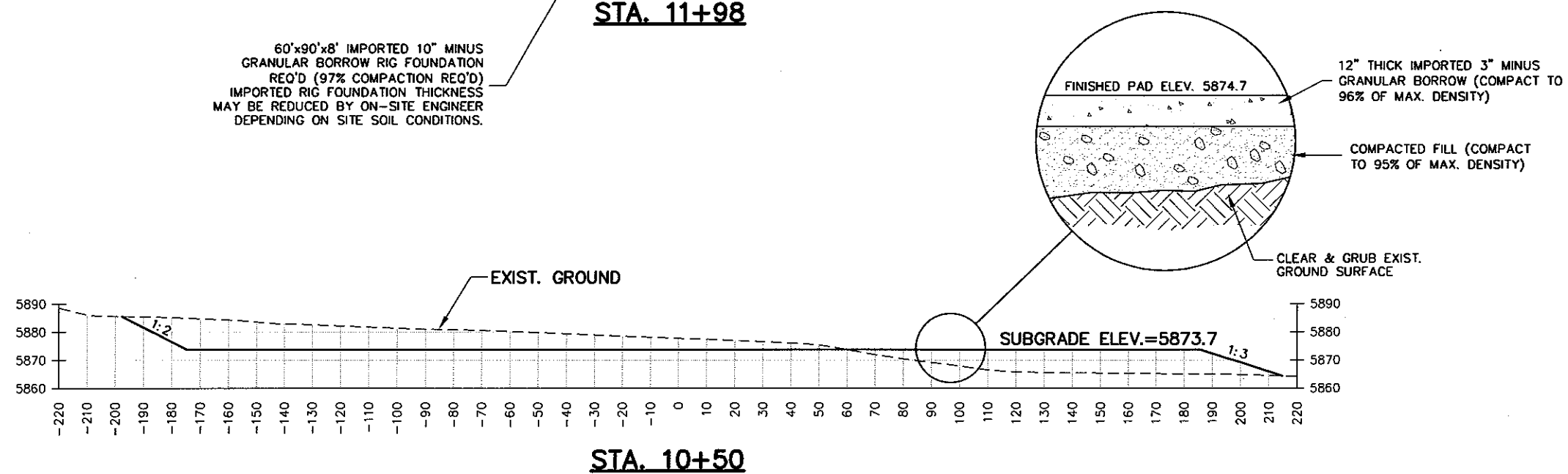
PROJECT NUMBER:	1102-122
WELL SITE PLAN	

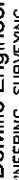
Mar. 09, 2011

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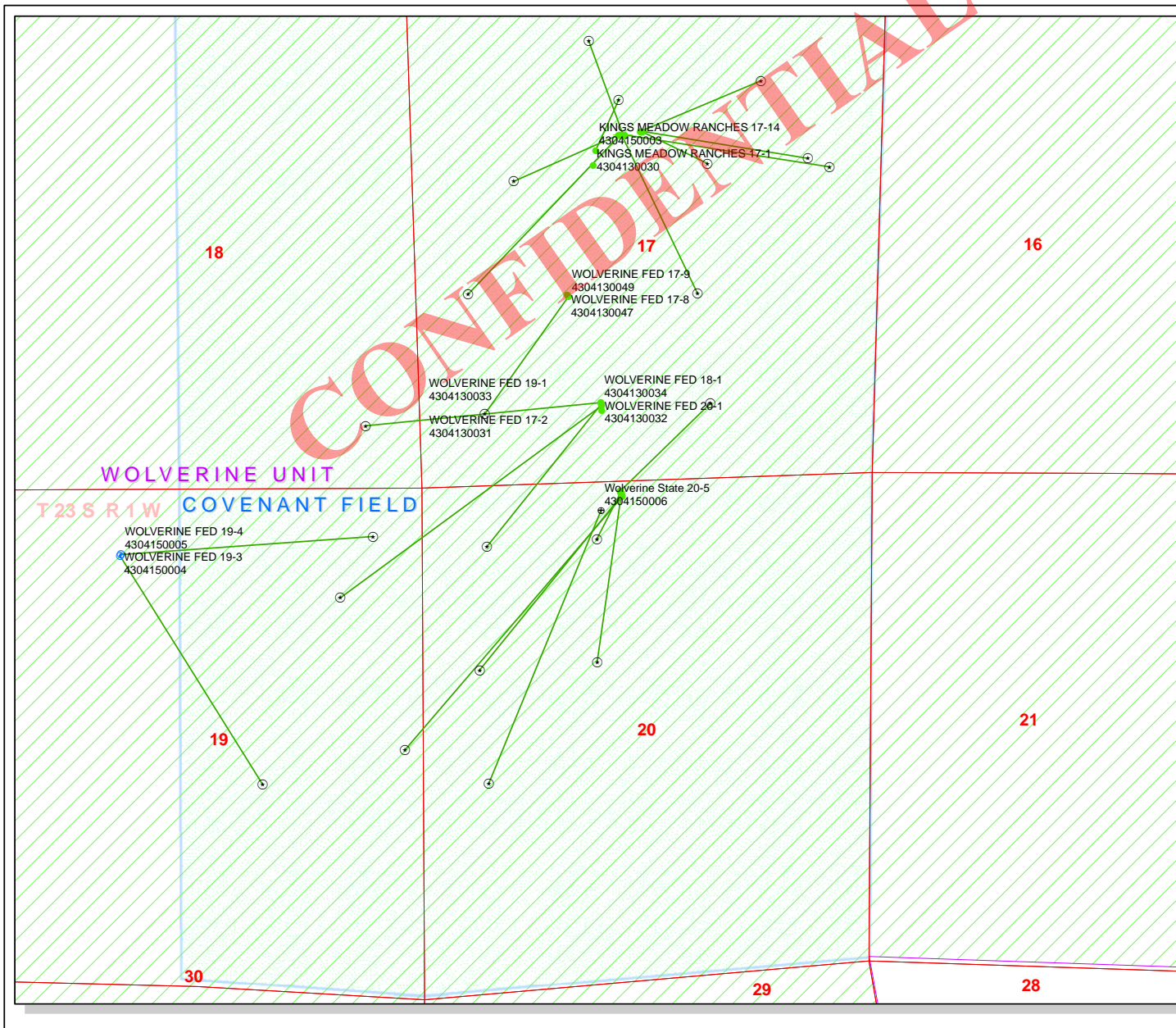


Wolverine Gas & Oil Co. of Utah, LLC		<b>Jones &amp; DeMille Engineering, Inc.</b> CIVIL ENGINEERING--SURVEYING--TESTING Richfield & Price Utah www.jonesanddemille.com		NO. DATE DESIGN TAKES (PARCELS REQUEST) REV. BY CORR. BY AFFECTED BY		REMARKS	
WOLVERINE STATE 20-5				DESIGN: . . . CHECK: . . . REVIEW: . . . DRAWN: B.L. 02-11 CHECK: . . . DATE: . . . QUANT: . . . CHECK: . . . BY: . . .			
WELL SITE PLAN		APPROVAL RECOMM: _____ DATE _____ PROJECT DESIGN ENGINEER _____					
PROJECT NUMBER: 1102-122		APPROVED: _____ DATE _____					
SEVIER COUNTY				ORIGINAL SUBMISSION FOR AUTHORIZATION		REVISIONS	
SHEET NO. SP-02		SCALE: 1" = 50' DWG NAME: SITE_1102-122 SHT SET: ##00 DWG CREATED: 02/24/2011 PEN TEL: 19966442800.cs				LAST UPDATE: 3/3/2011	



Wolverine Gas & Oil Co. of Utah, LLC		<div><div>Jones &amp; DeMille Engineering, Inc. CIVIL ENGINEERING-SURVEYING-TESTING Richfield &amp; Price Utah www.jonesanddemille.com</div></div>		DESIGN: . . . . .		CHECK: . . . . .		REVIEW	
WOLVERINE STATE 20-5		APPROVAL RECORD:    DATE: _____		PROJECT DESIGN ENGINEER: _____		DATE: _____		DATE: _____	
CROSS SECTIONS		APPROVED: _____		DATE: _____		BY: _____			
PROJECT NUMBER: 1102-122									
SEVIER COUNTY									
SHEET NO. CS-01									

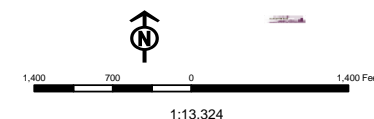




**API Number: 4304150006**  
**Well Name: Wolverine State 20-5**  
**Township T2.3 . Range R0.1 . Section 20**  
**Meridian: SLBM**  
**Operator: WOLVERINE GAS & OIL COMPANY OF UTAH, LLC**

Map Prepared:  
Map Produced by Diana Mason

Units	Wells Query
<b>STATUS</b>	<b>Status</b>
ACTIVE	APD - Approved Permit
EXPLORATORY	DRL - Spudded (Drilling Commenced)
GAS STORAGE	GIW - Gas Injection
NF PP OIL	GS - Gas Storage
NF SECONDARY	LA - Location Abandoned
PI OIL	LOC - New Location
PP GAS	OPS - Operation Suspended
PP GEOTHERMAL	PA - Plugged Abandoned
PP OIL	PGW - Producing Gas Well
SECONDARY	POW - Producing Oil Well
TERMINATED	RET - Returned APD
<b>Fields</b>	<b>Status</b>
Unknown	SGW - Shut-in Gas Well
ABANDONED	SOW - Shut-in Oil Well
ACTIVE	TA - Temp. Abandoned
COMBINED	TW - Test Well
INACTIVE	WDW - Water Disposal
STORAGE	WIW - Water Injection Well
TERMINATED	WSW - Water Supply Well
Sections	
Township	



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Utah State Office  
P.O. Box 45155  
Salt Lake City, Utah 84145-0155

IN REPLY REFER TO:  
3160  
(UT-922)

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March 10, 2011

### Memorandum

To: Field Office Manager, Richfield Field Office  
From: Michael Coulthard, Petroleum Engineer  
Subject: 2011 Plan of Development Wolverine Unit  
Sanpete and Sevier County, Utah.

Pursuant to email between Diana Whitney, Division of Oil, Gas and Mining, and Mickey Coulthard, Utah State Office, Bureau of Land Management, the following well is planned for calendar year 2011 within the Wolverine Unit, Sevier County, Utah.

API #	WELL NAME	LOCATION
-------	-----------	----------

(Proposed PZ NAVAJO Footwall Splay)

43-041-50006	Wolverine State 20-5 Sec 20 T23S R01W 0342 FNL 1901 FWL	
	BHL Sec 20 T23S R01W 2291 FSL 0678 FWL	

This office has no objection to permitting the well at this time.

Michael L. Coulthard

Digitally signed by Michael L. Coulthard  
DN: cn=Michael L. Coulthard, o=Bureau of Land Management, ou=Branch of Minerals, email=Michael\_Coulthard@blm.gov,  
c=US  
Date: 2011.03.10 10:16:36 -0700

bcc: File - Wolverine Unit  
Division of Oil Gas and Mining  
Central Files  
Agr. Sec. Chron  
Fluid Chron

MCoulthard:mc:3-10-11

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## BOPE REVIEW

## WOLVERINE GAS &amp; OIL COMPANY OF UTAH, LLC Wolverine State 20-5 43041500060000

Well Name	WOLVERINE GAS & OIL COMPANY OF UTAH, LLC Wolverin			
String	Surf	I1	I2	Prod
Casing Size(in)	13.375	9.625	7.625	4.500
Setting Depth (TVD)	2000	9935	11933	13133
Previous Shoe Setting Depth (TVD)	0	2000	9935	11933
Max Mud Weight (ppg)	8.5	8.9	9.0	9.0
BOPE Proposed (psi)	0	5000	5000	5000
Casing Internal Yield (psi)	3450	7930	7900	7780
Operators Max Anticipated Pressure (psi)	5778			8.5

Calculations	Surf String	13.375	"
Max BHP (psi)	.052*Setting Depth*MW=	884	
			BOPE Adequate For Drilling And Setting Casing at Depth?
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	644	NO
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	444	NO
			*Can Full Expected Pressure Be Held At Previous Shoe?
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	444	NO Reasonable depth, no expected pressures
Required Casing/BOPE Test Pressure=		2000	psi
*Max Pressure Allowed @ Previous Casing Shoe=		0	psi *Assumes 1psi/ft frac gradient

Calculations	I1 String	9.625	"
Max BHP (psi)	.052*Setting Depth*MW=	4598	
			BOPE Adequate For Drilling And Setting Casing at Depth?
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	3406	YES
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	2412	YES OK
			*Can Full Expected Pressure Be Held At Previous Shoe?
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	2852	NO OK
Required Casing/BOPE Test Pressure=		5000	psi
*Max Pressure Allowed @ Previous Casing Shoe=		2000	psi *Assumes 1psi/ft frac gradient

Calculations	I2 String	7.625	"
Max BHP (psi)	.052*Setting Depth*MW=	5585	
			BOPE Adequate For Drilling And Setting Casing at Depth?
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	4153	YES
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	2960	YES OK
			*Can Full Expected Pressure Be Held At Previous Shoe?
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	5145	YES OK
Required Casing/BOPE Test Pressure=		5000	psi
*Max Pressure Allowed @ Previous Casing Shoe=		7930	psi *Assumes 1psi/ft frac gradient

Calculations	Prod String	4.500	"
Max BHP (psi)	.052*Setting Depth*MW=	6146	
			BOPE Adequate For Drilling And Setting Casing at Depth?
MASP (Gas) (psi)	Max BHP-(0.12*Setting Depth)=	4570	YES
MASP (Gas/Mud) (psi)	Max BHP-(0.22*Setting Depth)=	3257	YES OK
			*Can Full Expected Pressure Be Held At Previous Shoe?
Pressure At Previous Shoe	Max BHP-.22*(Setting Depth - Previous Shoe Depth)=	5882	YES OK
Required Casing/BOPE Test Pressure=		5000	psi

\*Max Pressure Allowed @ Previous Casing Shoe=

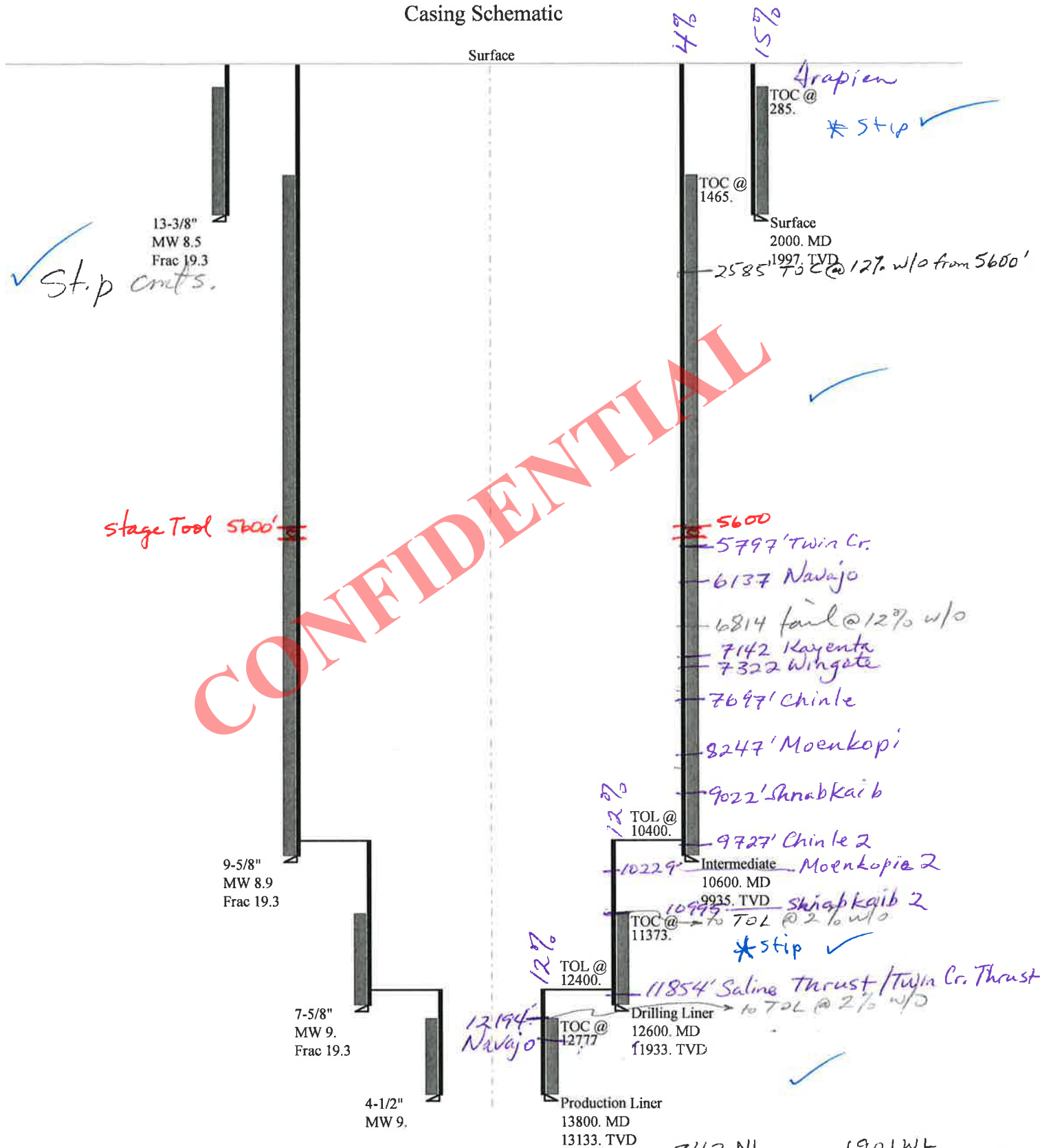
7900

psi \*Assumes 1psi/ft frac gradient

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# 43041500060000 Wolverine State 20-5

## Casing Schematic



342 NL  
3019  
3361 NL  
5578  
2217 FSL

1901 WL  
1408  
493 FWL

678 WL

2291 NW SW sec 20-23S-1W

OK.



Well name:	<b>43041500060000 Wolverine State 20-5</b>	
Operator:	<b>WOLVERINE GAS &amp; OIL COMPANY OF UTAH, LLC</b>	
String type:	Surface	Project ID: 43-041-50006
Location:	SEVIER	COUNTY

**Design parameters:****Collapse**

Mud weight: 8.500 ppg  
Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 74 °F  
Bottom hole temperature: 102 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 100 ft

Cement top: 285 ft

**Burst**

Max anticipated surface pressure: 1,760 psi  
Internal gradient: 0.120 psi/ft  
Calculated BHP 2,000 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.70 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)

Tension is based on air weight.  
Neutral point: 1,746 ft

**Directional Info - Build & Drop**

Kick-off point 1500 ft  
Departure at shoe: 44 ft  
Maximum dogleg: 2 °/100ft  
Inclination at shoe: 10 °

**Re subsequent strings:**

Next setting depth: 10,600 ft  
Next mud weight: 8.900 ppg  
Next setting BHP: 4,901 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 2,000 ft  
Injection pressure: 2,000 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	2000	13.375	68.00	J-55	ST&C	1997	2000	12.29	29171

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	882	1886	2.138	2000	3450	1.73	135.8	675	4.97 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: 801 538-5357  
FAX: 801-359-3940

Date: April 26, 2011  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 1997 ft, a mud weight of 8.5 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

Engineering responsibility for use of this design will be that of the purchaser.

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Well name:	<b>43041500060000 Wolverine State 20-5</b>	
Operator:	<b>WOLVERINE GAS &amp; OIL COMPANY OF UTAH, LLC</b>	
String type:	Intermediate	Project ID: 43-041-50006
Location:	SEVIER COUNTY	

**Design parameters:****Collapse**

Mud weight: 8.900 ppg  
Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 74 °F  
Bottom hole temperature: 213 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 100 ft

Cement top: 1,465 ft

**Burst**

Max anticipated surface pressure: 3,119 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 5,305 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.70 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.50 (B)

Tension is based on air weight.  
Neutral point: 9,196 ft

**Directional Info - Build & Drop**

Kick-off point 1500 ft  
Departure at shoe: 3302 ft  
Maximum dogleg: 2 °/100ft  
Inclination at shoe: 7 °

**Re subsequent strings:**

Next setting depth: 12,600 ft  
Next mud weight: 9.000 ppg  
Next setting BHP: 5,891 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 10,600 ft  
Injection pressure: 10,600 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	10600	9.625	53.50	L-80	LT&C	9935	10600	8.5	202882
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	4593	6548	1.425	5305	7930	1.49	531.5	1047	1.97 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: 801 538-5357  
FAX: 801-359-3940

Date: April 26, 2011  
Salt Lake City, Utah

**Remarks:**

Collapse is based on a vertical depth of 9935 ft, a mud weight of 8.9 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

Engineering responsibility for use of this design will be that of the purchaser.

**RECEIVED** Mar. 09, 2011

Well name:	<b>43041500060000 Wolverine State 20-5</b>		
Operator:	<b>WOLVERINE GAS &amp; OIL COMPANY OF UTAH, LLC</b>		
String type:	Drilling Liner	Project ID:	43-041-50006
Location:	SEVIER	COUNTY	

**Design parameters:****Collapse**

Mud weight: 9.000 ppg  
Design is based on evacuated pipe.

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 74 °F  
Bottom hole temperature: 241 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 1,000 ft

Cement top: 11,373 ft

**Burst**

Max anticipated surface pressure: 3,251 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 5,876 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.60 (B)

Tension is based on air weight.  
Neutral point: 12,304 ft

Liner top: 10,400 ft

**Directional Info - Build & Drop**

Kick-off point 1500 ft  
Departure at shoe: 3331 ft  
Maximum dogleg: 1.5 °/100ft  
Inclination at shoe: 0 °

**Re subsequent strings:**

Next setting depth: 13,134 ft  
Next mud weight: 9.000 ppg  
Next setting BHP: 6,140 psi  
Fracture mud wt: 19.250 ppg  
Fracture depth: 13,134 ft  
Injection pressure: 13,134 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	2200	7.625	33.70	N-80	VAM FJL	11934	12600	6.64	29781
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	5579	6560	1.176	5876	7900	1.34	74	609	8.23 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: 801 538-5357  
FAX: 801-359-3940

Date: April 26, 2011  
Salt Lake City, Utah

**Remarks:**

For this liner string, the top is rounded to the nearest 100 ft. Collapse is based on a vertical depth of 11934 ft, a mud weight of 9 ppg. The Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

Engineering responsibility for use of this design will be that of the purchaser.

**RECEIVED** Mar. 09, 2011

Well name: <b>43041500060000 Wolverine State 20-5</b>	
Operator: <b>WOLVERINE GAS &amp; OIL COMPANY OF UTAH, LLC</b>	Project ID: <b>43-041-50006</b>
String type: <b>Production Liner</b>	
Location: <b>SEVIER COUNTY</b>	

**Design parameters:****Collapse**

Mud weight: 9.000 ppg  
Internal fluid density: 1.000 ppg

**Minimum design factors:****Collapse:**

Design factor 1.125

**Burst:**

Design factor 1.00

**Environment:**

H2S considered? No  
Surface temperature: 74 °F  
Bottom hole temperature: 258 °F  
Temperature gradient: 1.40 °F/100ft  
Minimum section length: 1,000 ft

Cement top: 12,777 ft

**Burst**

Max anticipated surface pressure: 3,251 psi  
Internal gradient: 0.220 psi/ft  
Calculated BHP 6,140 psi

No backup mud specified.

**Tension:**

8 Round STC: 1.80 (J)  
8 Round LTC: 1.80 (J)  
Buttress: 1.60 (J)  
Premium: 1.50 (J)  
Body yield: 1.60 (B)

Tension is based on air weight.  
Neutral point: 13,612 ft

Liner top: 12,400 ft

**Directional Info - Build & Drop**

Kick-off point 1500 ft  
Departure at shoe: 3331 ft  
Maximum dogleg: 0 °/100ft  
Inclination at shoe: 0 °

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Est. Cost (\$)
1	1400	4.5	11.60	N-80	LT&C	13134	13800	3.875	5766
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (kips)	Tension Strength (kips)	Tension Design Factor
1	5458	6350	1.163	6140	7780	1.27	16.2	223	13.73 J

Prepared by: Helen Sadik-Macdonald  
Div of Oil, Gas & Mining

Phone: 801 538-5357  
FAX: 801-359-3940

Date: April 26, 2011  
Salt Lake City, Utah

**Remarks:**

For this liner string, the top is rounded to the nearest 100 ft. Collapse is based on a vertical depth of 13134 ft, a mud weight of 9 ppg. An Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Collapse strength is (biaxially) derated for doglegs in directional wells by multiplying the tensile stress by the cross section area to calculate a

Engineering responsibility for use of this design will be that of the purchaser.

**RECEIVED** Mar. 09, 2011

# Application for Permit to Drill Statement of Basis

5/4/2011

## Utah Division of Oil, Gas and Mining

Page 1

<b>APD No</b>	<b>API WellNo</b>	<b>Status</b>	<b>Well Type</b>	<b>Surf Owner</b>	<b>CBM</b>
3510	43041500060000	LOCKED	OW	F	No
<b>Operator</b>	WOLVERINE GAS & OIL COMPANY OF UTAH, LLC		<b>Surface Owner-APD</b>		
<b>Well Name</b>	Wolverine State 20-5		<b>Unit</b>	WOLVERINE	
<b>Field</b>	COVENANT		<b>Type of Work</b>	DRILL	
<b>Location</b>	NENW 20 23S 1W S 342 FNL 1901 FWL		GPS Coord (UTM)	418900E	4294156N

### Geologic Statement of Basis

Wolverine proposes to set 2,000' of surface casing at this location. The well will be drilled to surface casing depth with fresh water mud. Any water contained in the Arapien Shale is likely to be of poor quality. A Division of Water Rights publication notes that aquifers in close proximity to the Arapien Shale are also likely to contain ground water with high TDS levels. Several water rights exist in this area but the usable water comes from strata which will not be encountered in drilling the proposed well. The proposed casing and cement program should be sufficient for drilling a well at the proposed location.

Brad Hill  
APD Evaluator

3/22/2011  
Date / Time

### Surface Statement of Basis

Surface rights at the proposed location are owned by the Federal Government. The operator is responsible for obtaining all required surface permits and/or rights-of-way.

Brad Hill  
Onsite Evaluator

3/22/2011  
Date / Time

### Conditions of Approval / Application for Permit to Drill

<b>Category</b>	<b>Condition</b>
	None.



# WORKSHEET APPLICATION FOR PERMIT TO DRILL

**APD RECEIVED:** 3/9/2011**API NO. ASSIGNED:** 43041500060000**WELL NAME:** Wolverine State 20-5**OPERATOR:** WOLVERINE GAS & OIL COMPANY OF UTAH, LLC (N1655)**PHONE NUMBER:** 435 896-1943**CONTACT:** Charles Irons**PROPOSED LOCATION:** NENW 20 230S 010W**Permit Tech Review:** ☒**SURFACE:** 0342 FNL 1901 FWL**Engineering Review:** ☒**BOTTOM:** 2291 FSL 0678 FWL**Geology Review:** ☒**COUNTY:** SEVIER**LATITUDE:** 38.79429**LONGITUDE:** -111.93385**UTM SURF EASTINGS:** 418900.00**NORTHINGS:** 4294156.00**FIELD NAME:** COVENANT**LEASE TYPE:** 3 - State**LEASE NUMBER:** UT ML-46605**PROPOSED PRODUCING FORMATION(S):** NAVAJO**SURFACE OWNER:** 1 - Federal**COALBED METHANE:** NO**RECEIVED AND/OR REVIEWED:**

- ☒ **PLAT**
- ☒ **Bond:** STATE/FEE - B001849R
- ☐ **Potash**
- ☐ **Oil Shale 190-5**
- ☐ **Oil Shale 190-3**
- ☐ **Oil Shale 190-13**
- ☒ **Water Permit:** Town of Sigurd
- ☐ **RDCC Review:**
- ☐ **Fee Surface Agreement**
- ☐ **Intent to Commingle**

**Commingle Approved****LOCATION AND SITING:**

- ☐ **R649-2-3.**
- Unit:** WOLVERINE
- ☐ **R649-3-2. General**
- ☒ **R649-3-3. Exception**
- ☒ **Drilling Unit**
- Board Cause No:** R649-3-11
- Effective Date:**
- Siting:**
- ☒ **R649-3-11. Directional Drill**

**Comments:** Presite Completed**Stipulations:**

- 1 - Exception Location - dmason
- 4 - Federal Approval - dmason
- 5 - Statement of Basis - bhll
- 12 - Cement Volume (3) - ddoucet
- 15 - Directional - dmason
- 23 - Spacing - dmason
- 25 - Surface Casing - ddoucet

**RECEIVED** Mar. 09, 2011



GARY R. HERBERT  
*Governor*

GREGORY S. BELL  
*Lieutenant Governor*

## State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

Division of Oil, Gas and Mining

JOHN R. BAZA  
*Division Director*

### Permit To Drill

\*\*\*\*\*

**Well Name:** Wolverine State 20-5

**API Well Number:** 43041500060000

**Lease Number:** UT ML-46605

**Surface Owner:** FEDERAL

**Approval Date:** 5/10/2011

**Issued to:**

WOLVERINE GAS & OIL COMPANY OF UTAH, LLC, 1140 N. Centennial Park Dr., Richfield, UT 84701

**Authority:**

Pursuant to Utah Code Ann. §40-6-1 et seq., and Utah Administrative Code R649-3-1 et seq., the Utah Division of Oil, Gas and Mining issues conditions of approval, and permit to drill the listed well. This permit is issued in accordance with the requirements of R649-3-11. The expected producing formation or pool is the NAVAJO Formation(s), completion into any other zones will require filing a Sundry Notice (Form 9). Completion and commingling of more than one pool will require approval in accordance with R649-3-22.

**Duration:**

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date

**Exception Location:**

Appropriate information has been submitted to DOGM and administrative approval of the requested exception location is hereby granted.

**General:**

Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

**Conditions of Approval:**

State approval of this well does not supercede the required federal approval, which must be obtained prior to drilling.

In accordance with Utah Admin. R.649-3-11, Directional Drilling, the operator shall submit a complete angular deviation and directional survey report to the Division within 30 days following completion of the well.

This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter

section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.

Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis (copy attached).

Cement volume for the 7 5/8" drilling liner shall be determined from actual hole diameter in order to place cement from the pipe setting depth back to TOL (10,400' MD) as indicated in the submitted drilling plan.

Surface casing shall be cemented to the surface.

**Additional Approvals:**

The operator is required to obtain approval from the Division of Oil, Gas and mining before performing any of the following actions during the drilling of this well:

- Any changes to the approved drilling plan – contact Dustin Doucet
- Significant plug back of the well – contact Dustin Doucet
- Plug and abandonment of the well – contact Dustin Doucet

**Notification Requirements:**

The operator is required to notify the Division of Oil, Gas and Mining of the following actions during drilling of this well:

- Within 24 hours following the spudding of the well – contact Carol Daniels  
OR  
submit an electronic sundry notice (pre-registration required) via the Utah Oil & Gas website at <https://oilgas.ogm.utah.gov>
- 24 hours prior to testing blowout prevention equipment - contact Dan Jarvis
- 24 hours prior to cementing or testing casing – contact Dan Jarvis
- Within 24 hours of making any emergency changes to the approved drilling program – contact Dustin Doucet
- 24 hours prior to commencing operations to plug and abandon the well – contact Dan Jarvis

**Contact Information:**

The following are Division of Oil, Gas and Mining contacts and their telephone numbers (please leave a voicemail message if the person is not available to take the call):

- Carol Daniels 801-538-5284 - office
- Dustin Doucet 801-538-5281 - office  
801-733-0983 - after office hours
- Dan Jarvis 801-538-5338 - office  
801-231-8956 - after office hours

**Reporting Requirements:**

All reports, forms and submittals as required by the Utah Oil and Gas Conservation General Rules will be promptly filed with the Division of Oil, Gas and Mining, including but not limited to:

- Entity Action Form (Form 6) – due within 5 days of spudding the well
- Monthly Status Report (Form 9) – due by 5th day of the following calendar month
- Requests to Change Plans (Form 9) – due prior to implementation
- Written Notice of Emergency Changes (Form 9) – due within 5 days
- Notice of Operations Suspension or Resumption (Form 9) – due prior to implementation
- Report of Water Encountered (Form 7) – due within 30 days after completion
- Well Completion Report (Form 8) – due within 30 days after completion or plugging

**Approved By:**

A handwritten signature in black ink, appearing to read 'Brad Hill', written in a cursive style.

Brad Hill  
For John Rogers  
Associate Director, Oil & Gas

## DIVISION OF OIL, GAS AND MINING

### SPUDDING INFORMATION

Name of Company: WOLVERINE GAS & OIL CO OF UTAH

Well Name: WOLVERINE STATE 20-5

Api No: 43-041-50006 Lease Type STATE - FED SURF

Section 20 Township 23S Range 01W County SEVIER

Drilling Contractor PETE MARTIN DRLG RIG # BUCKET

### SPUDDED:

Date 06/16/2011

Time AM

How DRY

**Drilling will Commence:** \_\_\_\_\_

Reported by KENT CLARE

Telephone # (970) 812-0022

Date 06/16/2011 Signed CHD



<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UT ML-46605
<b>1. TYPE OF WELL</b> Oil Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> WOLVERINE GAS & OIL COMPANY OF UTAH, LLC		<b>7. UNIT or CA AGREEMENT NAME:</b> WOLVERINE
<b>3. ADDRESS OF OPERATOR:</b> One Riverfront Plaza 55 Campau NW, Grand Rapids, MI, 49503		<b>8. WELL NAME and NUMBER:</b> Wolverine State 20-5
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 0342 FNL 1901 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NENW Section: 20 Township: 23.0S Range: 01.0W Meridian: S		<b>9. API NUMBER:</b> 43041500060000
<b>9. FIELD and POOL or WILDCAT:</b> COVENANT		<b>COUNTY:</b> SEVIER
<b>STATE:</b> UTAH		
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:	<input type="checkbox"/> <b>ACIDIZE</b>	
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> <b>ALTER CASING</b>	
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> <b>CASING REPAIR</b>	
<input checked="" type="checkbox"/> <b>DRILLING REPORT</b> Report Date: 6/30/2011	<input type="checkbox"/> <b>CHANGE TO PREVIOUS PLANS</b>	
	<input type="checkbox"/> <b>CHANGE TUBING</b>	
	<input type="checkbox"/> <b>CHANGE WELL STATUS</b>	
	<input type="checkbox"/> <b>COMMINGLE PRODUCING FORMATIONS</b>	
	<input type="checkbox"/> <b>DEEPEN</b>	
	<input type="checkbox"/> <b>FRACTURE TREAT</b>	
	<input type="checkbox"/> <b>OPERATOR CHANGE</b>	
	<input type="checkbox"/> <b>PLUG AND ABANDON</b>	
	<input type="checkbox"/> <b>PRODUCTION START OR RESUME</b>	
	<input type="checkbox"/> <b>RECLAMATION OF WELL SITE</b>	
	<input type="checkbox"/> <b>REPERFORATE CURRENT FORMATION</b>	
	<input type="checkbox"/> <b>SIDETRACK TO REPAIR WELL</b>	
	<input type="checkbox"/> <b>TUBING REPAIR</b>	
	<input type="checkbox"/> <b>VENT OR FLARE</b>	
	<input type="checkbox"/> <b>WATER SHUTOFF</b>	
	<input type="checkbox"/> <b>SI TA STATUS EXTENSION</b>	
	<input type="checkbox"/> <b>WILDCAT WELL DETERMINATION</b>	
	<input type="checkbox"/> <b>OTHER:</b> <input style="width: 100px;" type="text"/>	
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b> CONTINTUED CONFIDENTIAL STATUS REQUESTED The Wolverine State 20-5 spud on 6-28-2011. 6-28-2011: Depth 149', Drilling, MW 8.6, Vis. 30, FL nc, Surveys - None 6-29-2011: Depth 344', Drilling, MW 8.6, Vis. 35, FL 35, <b>Accepted by the</b> Surveys: .13 @260' 6-30-2011: Depth 508', Drilling, MW 8.6, Vis. 66, FL <b>Utah Division of</b> 34.0, Surveys none <b>Oil, Gas and Mining</b> <div style="text-align: right; font-weight: bold; font-size: 1.2em;">FOR RECORD ONLY</div>		
<b>NAME (PLEASE PRINT)</b> Helene Bardolph		<b>PHONE NUMBER</b> 616 458-1150
<b>SIGNATURE</b> N/A		<b>TITLE</b> Engineering Administrative Assistant
<b>DATE</b> 7/7/2011		

**Carol Daniels - Wolverine State 20-5 Update**

*T235 R014 5-20 4304150006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/23/2011 5:46 AM  
**Subject:** Wolverine State 20-5 Update

---

6/23/2011 5:44 AM

Move day 3, moved in mud tanks

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 812-0022**  
**Cell (720) 351-7470**  
**Fax (435) 304-1222**  
**wolvexpl@drillmail.net**

**RECEIVED**

**JUN 28 2011**

**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 6/26/2011 7:16 AM  
**Subject:** Wolverine State 20-5 Update

---

Prepare and raise derrick, r/u power to sub and derrick, connect EDS and rig water, r/u #2 mud line, filling pits with water. Anticipate spud Monday pm.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

**RECEIVED**

**JUN 28 2011**

**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 6/27/2011 7:07 AM  
**Subject:** Wolverine State 20-5 Update

6/27/2011 7:05 AM

Continue rig up anticipate spud this evening.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

**RECEIVED**

**JUN 28 2011**

**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 - Notification of Spud**

*T235 R01W S20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Jones, Mark" , "Doucet, Dustin"  
**Date:** 6/28/2011 6:46 AM  
**Subject:** Wolverine State 20-5 - Notification of Spud  
**CC:** "Irons, Charlie" , "Higuera, Ed"

---

This is notification of spud of the 17 ½" surface hole at 144' DF on the Wolverine State 20-5, API Well 43041500060000, Lease UT ML-46605 at 05:00 hrs 6/28/11.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

**RECEIVED**

**JUN 28 2011**

**DIV. OF OIL, GAS & MINING**



Carol Daniels - Wolverine State 20-5 Update

T235 ROW 5-20 43-041-50006

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/28/2011 7:09 AM  
**Subject:** Wolverine State 20-5 Update

---

6/28/2011 7:06 AM

Spud at 05:00 6/28/11, Drilling 17 ½" hole at 161'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

RECEIVED

JUN 28 2011

DIV. OF OIL, GAS & MINING

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 6

**ENTITY ACTION FORM**

Operator: Wolverine Gas & Oil Company of Utah, LLC Operator Account Number: N 1655  
Address: 55 Campau NW  
city Grand Rapids  
state MI zip 49503 Phone Number: (616) 458-1150

**Well 1**

API Number	Well Name	QQ	Sec	Twp	Rng	County
4304150006	Wolverine State 20-5	NENW	20	23S	1W	Sevier
Action Code	Current Entity Number	New Entity Number	Spud Date	Entity Assignment Effective Date		
B	99999	18096	6-16-2011	6/29/11		
Comments: Proposed BHL: 2291' FSL, 678' FWL, Section 20, T23S, R1W <u>NAVA</u> <u>BHL = NWSW</u>						<b>CONFIDENTIAL</b>

**Well 2**

API Number	Well Name	QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date	Entity Assignment Effective Date		
Comments:						

**Well 3**

API Number	Well Name	QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date	Entity Assignment Effective Date		
Comments:						

**ACTION CODES:**

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

Helene Bardolph

Name (Please Print)

Signature

Engineering Assistant

Title

6/23/2011

Date

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Carol Daniels - Wolverine State 20-5 Update

*T 235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/29/2011 6:47 AM  
**Subject:** Wolverine State 20-5 Update

6/29/2011 6:44 AM

Drilling at 353'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/30/2011 7:20 AM  
**Subject:** Wolverine State 20-5 Update

---

6/30/2011 7:17 AM

Drilling 17 ½" hole at 517'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update***T235 R014 S-20 43-041-50006***From:** "Wolverine Exploration Rig"**To:** "Daniels, Carol", "Doucet, Dustin", "Jarvis, Dan", "Jones, Mark"**Date:** 7/4/2011 6:32 AM**Subject:** Wolverine State 20-5 Update

7/4/2011 6:30 AM

Drilling at 1638'

				ESTIMATED SCHEDULE
DATE	DAY	START TIME	HR	DESCRIPTION
4-Jul	Monday	5:30	25.00	Drill 1630-2030 (16 fph)
5-Jul	Tuesday	6:30	1.00	CBU for trip, Drop Gyro Tool
		7:30	3.50	POOH for casing, lay down 8" DC's
		11:00	7.00	RU and run casing
		18:00	1.50	Circ and condition for cement
		19:30	0.50	RD Casers
		20:00	3.00	Cement casing
		23:00	3.00	Drain riser clean cellar, RD Schlumberger
6-Jul	Wednesday	2:00	6.00	WOC
		8:00	2.00	Cut off Casing, remove riser
		10:00	3.00	Final cut and weld on bradenhead
		13:00	1.00	Test weld
		14:00	14.00	Nipple up BOPE
7-Jul	Thursday	4:00	5.00	Pressure test BOPE
		9:00		

**Tom Zupan****Drilling Supervisor****Wolverine Gas and Oil Company of Utah, LLC****Rig (970) 361-3276****Cell (970) 314-8219****wolvexpl@drillmail.net**

**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/1/2011 7:15 AM  
**Subject:** Wolverine State 20-5 Update

7/1/2011 7:12 AM

Drilling 17 ½" hole at 614'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW 5-20 43-041-5006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/2/2011 7:01 AM  
**Subject:** Wolverine State 20-5 Update

7/2/2011 6:59 AM

Drilling at 864'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update- Corrected**

T 235R014 5-20 43-041-5 0006

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/3/2011 9:12 AM  
**Subject:** Wolverine State 20-5 Update- Corrected

Corrected- please discard previous sent.

7/3/2011 9:06 AM

Drilling at 1337'.

				ESTIMATED SCHEDULE
DATE	DAY	START TIME	HR	DESCRIPTION
3-Jul	Sunday	9:00	31.50	Drill 1337-2030 (23 fph)
4-Jul	Monday	16:30	1.00	CBU for wiper trip, Drop Gyro Tool
		17:30	3.50	POOH for casing, lay down 8" DC's
		21:00	7.00	RU and run casing
5-Jul	Tuesday	4:00	1.50	Circ and condition for cement
		5:30	0.50	RD Casers
		6:00	3.00	Cement casing
		9:00	3.00	Drain riser clean cellar, RD Schlumberger
		12:00	6.00	WOC
		18:00	2.00	Cut off Casing, remove riser
		20:00	3.00	Final cut and weld on bradenhead
		23:00	1.00	Test weld
6-Jul	Wednesday	0:00	14.00	Nipple up BOPE
		14:00	5.00	Pressure test BOPE
		19:00		

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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Carol Daniels - Wolverine State 20-5 Update

TAGS ROW 5-20 43-041-50006

**From:** "Wolverine Exploration Rig"**To:** "Daniels, Carol", "Doucet, Dustin", "Jarvis, Dan", "Jones, Mark"**Date:** 7/5/2011 6:22 AM**Subject:** Wolverine State 20-5 Update

7/5/2011 6:20 AM

Drilling at 1946'.

ESTIMATED SCHEDULE				
DATE	DAY	START TIME	HR	DESCRIPTION
5-Jul	Tuesday	6:00	4.00	Drill 1941-2028 (14 fph)
5-Jul		10:00	1.00	CBU for trip, Drop Gyro Tool
		11:00	3.50	POOH for casing, lay down 8" DC's
		14:30	7.00	RU and run casing
		21:30	1.50	Circ and condition for cement
		23:00	0.50	RD Casers
		23:30	3.00	Cement casing
6-Jul	Wednesday	2:30	3.00	Drain riser clean cellar, RD Schlumberger
		5:30	6.00	WOC
		11:30	2.00	Cut off Casing, remove riser
		13:30	3.00	Final cut and weld on bradenhead
		16:30	1.00	Test weld
		17:30	14.00	Nipple up BOPE
7-Jul	Thursday	7:30	5.00	Pressure test BOPE
		12:30		

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 - Notification of Spud** *T23S R01W S20*

*43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Jones, Mark" , "Doucet, Dustin" , "Jarvis, Dan"  
**Date:** 7/5/2011 1:54 PM  
**Subject:** Wolverine State 20-5 - Notification of Spud  
**CC:** "Irons, Charlie" , "Higuera, Ed"

This is follow up on a voice mail left on Dan Jarvis' cell phone today.

This is notification of intent to run and cement 13 3/8" surface casing at 2028' DF on the Wolverine State 20-5, API Well 43041500060000, Lease UT ML-46605 at about 530pm this evening and could be cementing at 0230am tomorrow.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/6/2011 9:15 AM  
**Subject:** Wolverine State 20-5 Update

7/7/6/2011 7:25 AM

Circ and cond casing for cement.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/7/2011 6:44 AM  
**Subject:** Wolverine State 20-5 Update

7/7/2011 6:41 AM

NU BOPE.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/8/2011 7:14 AM  
**Subject:** Wolverine State 20-5 Update

7/8/2011 7:12 AM

Prep to pick up BHA.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/9/2011 8:00 AM  
**Subject:** Wolverine State 20-5 Update

7/9/2011 7:56 AM

Filling mud tanks with OBM. Calibrating PASON

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/10/2011 7:46 PM  
**Subject:** Wolverine State 20-5 Update

7/10/2011 7:44 PM

Hole Depth 2,966', TIH at 1,105' after changing out failed MWD module

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/11/2011 7:10 AM  
**Subject:** Wolverine State 20-5 Update

7/11/2011 7:06 AM

Hole depth 2,966', TIH at 2,902', Change Tru-Trak motor

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01W 5-20 4304150006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/14/2011 7:58 AM  
**Subject:** Wolverine State 20-5 Update

7/14/2011 7:56 AM

Drilling at 5,280', PR 52 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update** *T23S ROW 5-20 AFE# 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol", "Doucet, Dustin", "Jarvis, Dan", "Jones, Mark"  
**Date:** 7/16/2011 8:23 AM  
**Subject:** Wolverine State 20-5 Update

7/16/2011 8:21 AM

TIH at 5,715', Hole depth 5,824'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW 5-20 API #43-041-50246*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/17/2011 7:37 AM  
**Subject:** Wolverine State 20-5 Update

---

7/17/2011 7:35 AM

Drilling at 5,962'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 RO1W S-20 API# 43-04150006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 7/18/2011 5:13 PM  
**Subject:** Wolverine State 20-5 Update

7/18/2011 5:10 PM

TIH at 789', Hole depth 6,279'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/22/2011 8:56 AM  
**Subject:** Wolverine State 20-5 Update

7/22/2011 8:53 AM

Hole depth 6,712'

TOH at 3,725' for new bit

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update** *T235 R01W5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/23/2011 7:24 AM  
**Subject:** Wolverine State 20-5 Update

7/23/2011 7:22 AM

Drilling at 6725'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 225 R014 S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/24/2011 7:29 AM  
**Subject:** Wolverine State 20-5 Update

7/24/2011 7:27 AM

Connection at 6852'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 RO1W 5-90 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/25/2011 7:36 AM  
**Subject:** Wolverine State 20-5 Update

7/25/2011 7:34 AM

Drilling at 7075'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW 5-20 43041-5006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/26/2011 7:11 AM  
**Subject:** Wolverine State 20-5 Update

---

7/26/2011 7:07 AM

Trip in with bit and TT tool.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R 01 W S-20 43 04150006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/27/2011 7:23 AM  
**Subject:** Wolverine State 20-5 Update

---

7/27/2011 7:19 AM

Wash and ream at 4666'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 935 Ro1w S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/28/2011 6:51 AM  
**Subject:** Wolverine State 20-5 Update

7/28/2011 6:48 AM

Trip in hole with TruTrak and new insert bit at 1100'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/29/2011 6:52 AM  
**Subject:** Wolverine State 20-5 Update

7/29/2011 6:49 AM

Drilling at 7273'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/30/2011 6:48 AM  
**Subject:** Wolverine State 20-5 Update

7/30/2011 6:46 AM

Drilling at 7498'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/31/2011 6:22 AM  
**Subject:** Wolverine State 20-5 Update

---

7/31/2011 6:19 AM

Trip in with new bit at 7513'. TD=7583'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/1/2011 6:20 AM  
**Subject:** Wolverine State 20-5 Update

---

8/1/2011 6:17 AM

Trip out for new TruTrak at 6000'. TD = 7744'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 735 ROW 5-20 43 041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/2/2011 6:51 AM  
**Subject:** Wolverine State 20-5 Update

8/2/2011 6:48 AM

Drilling at 7809'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update** *T 235 R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/3/2011 3:31 PM  
**Subject:** Wolverine State 20-5 Update

Wolverine State 20-5 BOP test this evening. WE are currently tripping and will test the BOPE this evening.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T-23S ROILW S-28 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/3/2011 6:56 AM  
**Subject:** Wolverine State 20-5 Update

---

8/3/2011 6:53 AM

Drilling at 7942'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R014 S-20 43-41-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/4/2011 6:16 AM  
**Subject:** Wolverine State 20-5 Update

8/4/2011 6:14 AM

Trip in at 2400'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 735 ROW S-20 43-041-5004*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/5/2011 6:45 AM  
**Subject:** Wolverine State 20-5 Update

---

8/5/2011 6:42 AM

Drilling at 8022'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W S-20 43-041-500-06*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/6/2011 7:08 AM  
**Subject:** Wolverine State 20-5 Update

---

8/6/2011 7:06 AM

TIH at 8,032'  
Hole Depth 8,042'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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Carol Daniels - Wolverine State 20-5 Update *T 235 R 01 W S-20 43-041-50006*

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**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/7/2011 7:45 AM  
**Subject:** Wolverine State 20-5 Update

---

8/7/2011 7:42 AM

Drilling at 8,122', PR 3.5 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R 014.5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/8/2011 7:17 AM  
**Subject:** Wolverine State 20-5 Update

---

8/8/2011 7:14 AM

Drilling at 8,215', PR 5 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 735 ROW S-20 43-041-5004*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 8/5/2011 6:45 AM  
**Subject:** Wolverine State 20-5 Update

---

8/5/2011 6:42 AM

Drilling at 8022'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 No service on location.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W S-20 43-041-500-06*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/6/2011 7:08 AM  
**Subject:** Wolverine State 20-5 Update

---

8/6/2011 7:06 AM

TIH at 8,032'  
Hole Depth 8,042'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update** *T 235 R 01 W S-20 43-041-50006*

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**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/7/2011 7:45 AM  
**Subject:** Wolverine State 20-5 Update

---

8/7/2011 7:42 AM

Drilling at 8,122', PR 3.5 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R 014.5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/8/2011 7:17 AM  
**Subject:** Wolverine State 20-5 Update

---

8/8/2011 7:14 AM

Drilling at 8,215', PR 5 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5, Update**

*T235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/9/2011 7:11 AM  
**Subject:** Wolverine State 20-5, Update

---

8/9/2011 7:09 AM

Hole depth 8,239', TIH at 2,100'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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Carol Daniels - Wolverine State 20-5 Update

T235 Roilw 5-26 43-041-50006

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/11/2011 6:54 AM  
**Subject:** Wolverine State 20-5 Update

8/11/2011 6:52 AM

Drilling at 8,428', PR 7.5 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/13/2011 7:10 AM  
**Subject:** Wolverine State 20-5 Update

---

8/13/2011 7:07 AM

Drilling at 8,557', PR 20 FPH

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W 5-20 43-041-5000*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 8/14/2011 6:24 AM  
**Subject:** Wolverine State 20-5 Update

---

8/14/2011 6:20 AM

TIH  
Hole depth 8,678'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T-235 Below 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/15/2011 7:23 AM  
**Subject:** Wolverine State 20-5 Update

---

8/15/2011 7:20 AM

Drilling at 8,842', PR 25 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01W S-26 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 8/16/2011 12:31 PM  
**Subject:** Wolverine State 20-5 Update

---

8/16/2011 12:29 PM

Hole Depth 8,953', TOH for NB

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROIW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/17/2011 6:59 AM  
**Subject:** Wolverine State 20-5 Update

8/17/2011 6:56 AM

Hole depth 8,953', TOH to replace MWD

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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Carol Daniels - Wolverine State 20-5 Update

T235 R01W 5-20 4304150006

---

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 8/18/2011 7:03 AM  
**Subject:** Wolverine State 20-5 Update

---

8/18/2011 7:00 AM

Hole depth 8,953', TIH at 8,145'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R 01W S-20 43-041-5006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/22/2011 7:03 AM  
**Subject:** Wolverine State 20-5 Update

---

8/22/2011 7:00 AM

Trip in at 6382'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/20/2011 7:32 AM  
**Subject:** Wolverine State 20-5 Update

---

8/20/2011 7:29 AM

Drilling at 9187'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 RO1 W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/24/2011 7:01 AM  
**Subject:** Wolverine State 20-5 Update

---

8/24/2011 6:58 AM

Prep to trip for bit at 9478'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 Rolw S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 8/25/2011 6:51 AM  
**Subject:** Wolverine State 20-5 Update

---

8/25/2011 6:47 AM

Drilling at 9487'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W S-20 4304150006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 8/26/2011 6:40 AM  
**Subject:** Wolverine State 20-5 Update

8/26/2011 6:37 AM

Drilling at 9627'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW-S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/27/2011 7:20 AM  
**Subject:** Wolverine State 20-5 Update

---

8/27/2011 7:18 AM

Working BHA.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update** *T235 ROW 5-20 43-041-50006*

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**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 8/28/2011 6:18 AM  
**Subject:** Wolverine State 20-5 Update

---

8/28/2011 6:14 AM

Reaming Fracture at 9652'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 P01W S-20 4304150006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/29/2011 6:03 AM  
**Subject:** Wolverine State 20-5 Update

---

8/29/2011 5:59 AM

Trip out at 6380'. TD 9680'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 Rdtw 5-26 43-041-5006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/30/2011 6:57 AM  
**Subject:** Wolverine State 20-5 Update

---

8/30/2011 6:55 AM

Drilling at 9685'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W 5-20 4304150006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/31/2011 6:31 AM  
**Subject:** Wolverine State 20-5 Update

8/31/2011 6:27 AM

Working BHA to pick up slick clean out assembly

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 - Notification of BOPE test**

*T 235 R 01W S-20  
43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 8/31/2011 4:50 PM  
**Subject:** Wolverine State 20-5 - Notification of BOPE test

8/31/2011 4:41 PM

Well: Wolverine State 20-5  
API Well: #430415000600000  
Lease: # UT ML-46605

Currently tripping in with a rotary assembly at 9411'. Will trip in and work on fracture zone at 9714'. Uncertain as to time on bottom but when we trip out we will be testing the BOPE. I anticipate this will happen tomorrow afternoon. I will update you as it develops.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 801W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/2/2011 6:11 AM  
**Subject:** Wolverine State 20-5 Update

9/2/2011 6:05 AM

Trip out for BOP test then TruTrak drilling assembly.

The BOP test that you were alerted to will commence at about 9am today.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 - Notification of BOPE test**

*T 235 R0140 S-20*

*43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/2/2011 1:43 PM  
**Subject:** Wolverine State 20-5 - Notification of BOPE test

8/31/2011 4:41 PM

Currently tripping in with a rotary assembly at 9411'. Will trip in and work on fracture zone at 9714'. Uncertain as to time on bottom but when we trip out we will be testing the BOPE. I anticipate this will happen tomorrow afternoon. I will update you as it develops.

**Tom Zupan**  
**Drilling Supervisor**  
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**Carol Daniels - Wolverine State 20-5 Update** *T235 R01W 5-20 43-041-50006*

---

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/3/2011 7:02 AM  
**Subject:** Wolverine State 20-5 Update

---

9/3/2011 6:59 AM

Drilling at 9,742', PR 3 fph,

Ran 30 day BOP stack test on 9/2/11, all tests good

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update** *T238 R01W 5-20 43-041-50006*

---

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/4/2011 7:26 AM  
**Subject:** Wolverine State 20-5 Update

---

9/4/2011 7:22 AM

Hole depth 9,890', Bit depth 1,120', TOH

Casing point 10,100'-10,600' depending on hole condition

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R014 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/5/2011 5:00 PM  
**Subject:** Wolverine State 20-5 Update

---

9/5/2011 4:56 PM

Bit Depth 105', Hole Depth 9,890', Inspecting BHA

Casing point 10,100' to 10,600' depending on hole conditions

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update** *T 935 Row 5-20 43-041-5 0006*

---

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/6/2011 7:10 AM  
**Subject:** Wolverine State 20-5 Update

---

9/6/2011 7:05 AM

Drilling at 9,898', PR 11.5 fph

Earliest casing point 10,100'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update** *T235 ROIU 5-20 43-041-50006*

---

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/8/2011 10:01 AM  
**Subject:** Wolverine State 20-5 Update

---

9/8/2011 9:58 AM

Hole depth 10,159', repairing pump, casing point has not been determined.

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 735 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/9/2011 7:26 AM  
**Subject:** Wolverine State 20-5 Update

---

9/9/2011 7:23 AM

Hole depth 10,268', Spotting LCM pill

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 939 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/10/2011 7:01 AM  
**Subject:** Wolverine State 20-5 Update

9/10/2011 6:57 AM

Hole depth 10,300', TIH @ 700', w/NB #23

Casing point has not been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update**

*+ 235 ROW S-20 43-041-5.0006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/11/2011 8:07 AM  
**Subject:** Wolverine State 20-5 Update

---

9/11/2011 8:05 AM

Drilling at 10,335', PR 6 fph

Casing point is at 10,400'.

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update***T235 R01W-5-20 43-041-5006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/12/2011 7:40 AM  
**Subject:** Wolverine State 20-5 Update

9/12/2011 7:37 AM

Hole depth 10,400', LD BHA at 103'

Halliburton loggers on location to log.

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 735 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/15/2011 11:29 AM  
**Subject:** Wolverine State 20-5 Update

---

9/15/2011 11:24 AM

Slipping drilling line

Preparing rig for casing run. The plan is to run 9 5/8" casing to 10,400' and cement.

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update** *43-041-50006 T235 ROW 5-20*

---

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/17/2011 3:46 PM  
**Subject:** Wolverine State 20-5 Update

---

As we will be finishing our cement tonight and setting slips through the stack we will be testing the BOP equipment on Patterson 304 in the early morning hours. I will also call Dan Jarvis.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update** 43-041-50006 T235 RG142-20

---

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/18/2011 7:20 AM  
**Subject:** Wolverine State 20-5 Update

---

9/18/2011 7:16 AM

Nipple down spacer spool.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Cell (970) 314-8219 (no reception on this location)**

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Page 1 of 1

**Carol Daniels - Wolverine State 20-5 Update** 43-041-50006 T235 R01W 9-20

---

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/19/2011 7:27 AM  
**Subject:** Wolverine State 20-5 Update

---

9/19/2011 7:25 AM

Picking up G pipe at 2267'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update** *43-041-50006 T235 ROW 5-26*

---

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/20/2011 6:50 AM  
**Subject:** Wolverine State 20-5 Update

---

9/20/2011 6:47 AM

Drilling on Float Collar

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update** *T 235 R 01 W 5-20 43-041-50006*

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**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/21/2011 7:21 AM  
**Subject:** Wolverine State 20-5 Update

---

9/21/2011 7:10 AM

Making up back up TruTrak Tool.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

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SEP 21 2011

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**Carol Daniels - Wolverine State 20-5 Update**

*T-23S ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/22/2011 6:43 AM  
**Subject:** Wolverine State 20-5 Update

---

9/22/2011 6:40 AM

Washing to bottom and logging GR

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 23S R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/23/2011 7:15 AM  
**Subject:** Wolverine State 20-5 Update

---

9/23/2011 7:12 AM

Connection/ survey at 10784'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T233 R01W S-20 43-041-5006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/24/2011 7:04 AM  
**Subject:** Wolverine State 20-5 Update

9/24/2011 7:00 AM

Drilling 8.5" at 10,969'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 233 ROWS-20 43 041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/25/2011 7:23 AM  
**Subject:** Wolverine State 20-5 Update

---

9/25/2011 7:17 AM

Drilling @11146', 7 5/8" csg pt 12,800-13,050'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W S-20 43-041-50066*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/26/2011 6:25 AM  
**Subject:** Wolverine State 20-5 Update

---

9/26/2011 6:23 AM

Drilling at 11367'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R 014 S-20 43-041-5006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 9/27/2011 6:24 AM  
**Subject:** Wolverine State 20-5 Update

---

9/27/2011 6:21 AM

Drilling at 11628'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 9/28/2011 6:47 AM  
**Subject:** Wolverine State 20-5 Update

---

9/28/2011 6:45 AM

TIH at 7200'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROILW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** ""Daniels, Carol"" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 9/29/2011 6:50 AM  
**Subject:** Wolverine State 20-5 Update

---

9/29/2011 6:47 AM

Starting trip out.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update** *T235 R01W S-20 43-041-50006*

---

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 9/30/2011 6:45 AM  
**Subject:** Wolverine State 20-5 Update

---

9/30/2011 6:42 AM

Ream TruTrak at 10655'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "'Daniels, Carol'" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/1/2011 6:48 AM  
**Subject:** Wolverine State 20-5 Update

---

10/1/2011 6:45 AM

Hole depth 11,637', Wash and Ream to bottom at 10,690'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**  
**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 23S R01W 5-20 43-041-5006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/2/2011 3:55 PM  
**Subject:** Wolverine State 20-5 Update

---

10/2/2011 3:53 PM

Circ and condition mud at 11,137', hole depth 11,637'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/3/2011 6:05 AM  
**Subject:** Wolverine State 20-5 Update

---

10/3/2011 6:03 AM

Circulate and condition mud, Bit depth 11,109', Hole depth 11,637'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
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**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update***T235 R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/4/2011 6:45 AM  
**Subject:** Wolverine State 20-5 Update

---

10/4/2011 6:42 AM

Wash and ream at 11,410', hole depth 11,637'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**  
**wolvexpl@drillmail.net**

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**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 Update**

*T239 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/5/2011 6:49 AM  
**Subject:** Wolverine State 20-5 Update

---

10/5/2011 6:45 AM

Drilling at 11,668', PR 30 fph

Casing point not determined, but shallowest 12,050' possible

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
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**Carol Daniels - Wolverine State 20-5 Update**

*TABS ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/6/2011 6:58 AM  
**Subject:** Wolverine State 20-5 Update

10/6/2011 6:49 AM

Drilling at 11,981', ROP 10 fph, Casing point has not been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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DEPT. OF OIL, GAS & MINING

**Carol Daniels - Wolverine State 20-5 Update** *T235 ROW 5-20 43-041-50006*

---

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/7/2011 6:58 AM  
**Subject:** Wolverine State 20-5 Update

---

10/7/2011 6:56 AM

Drilling at 12,208', PR 17 fph, Casing point has not been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01<sup>W</sup> 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/8/2011 7:04 AM  
**Subject:** Wolverine State 20-5 Update

---

10/8/2011 7:01 AM

Preparing to trip at 12,358', Casing point has not been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01 W S-20 43-041-5 0006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/9/2011 2:39 PM  
**Subject:** Wolverine State 20-5 Update

---

10/9/2011 2:36 PM

Drilling at 12,613', PR 11.9, Casing point has not been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update***T 23S R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/10/2011 7:32 AM  
**Subject:** Wolverine State 20-5 Update

---

10/10/2011 7:29 AM

Hole depth 12,711', Tripping for new bit and replace MM, MWD and GR

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R 01 W 5-20 43-041-5006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** ""Daniels, Carol"" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/11/2011 6:59 AM  
**Subject:** Wolverine State 20-5 Update

---

10/11/2011 6:57 AM

Tripping in hole @ 5,387'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update** *T235 ROW 5-26 43-041-5006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/12/2011 11:05 AM  
**Subject:** Wolverine State 20-5 Update

10/12/2011 11:02 AM

TOH to run cement bond log over intermediate casing.

Casing point has not been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 POW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/13/2011 6:56 AM  
**Subject:** Wolverine State 20-5 Update

---

10/13/2011 6:53 AM

SLB to case hole log

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T215 R024 S-15 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/14/2011 7:03 AM  
**Subject:** Wolverine State 20-5 Update

---

10/14/2011 6:59 AM

Hole depth 12,711', Trip in hole

Casing point has not been determine

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update**

7 235 19014 5-20  
S-10 43-041-50006

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "'Daniels, Carol'" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/15/2011 6:42 AM  
**Subject:** Wolverine State 20-5 Update

---

10/15/2011 6:38 AM

Trip in hole with TruTrak at 5282'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

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**Carol Daniels - Wolverine State 20-5 Update**

T 23S R 01W S-20 43-041-50006

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/16/2011 7:20 AM  
**Subject:** Wolverine State 20-5 Update

---

10/16/2011 7:18 AM

Circulate and condition mud at 11100'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/17/2011 6:29 AM  
**Subject:** Wolverine State 20-5 Update

---

10/17/2011 6:25 AM

Wash and ream at 10728'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/18/2011 7:07 AM  
**Subject:** Wolverine State 20-5 Update

---

10/18/2011 6:57 AM

Washing and reaming at 12585'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**

**wolvexpl@drillmail.net**

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**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 Notice to test BOPE**

*T 235 R014 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/20/2011 12:23 PM  
**Subject:** Wolverine State 20-5 Notice to test BOPE  
**CC:** "Higuera, Ed" <ehiguera@wolvgas.com>, "Irons, Charlie" <cirons@wolvgas.com>

---

10/20/2011 12:20 PM

Well: Wolverine State 20-5  
API Well: #430415000600000  
Lease: # UT ML-46605

This morning it was decided to pull out of the hole to change assemblies. Currently TOO H with TruTrak assembly at 10946'. We will test the BOPE this evening at about 8 pm.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**

**wolvexpl@drillmail.net**

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**OCT 20 2011**

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**Carol Daniels - Wolverine State 20-5 Update***T 235 ROLW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/21/2011 7:12 AM  
**Subject:** Wolverine State 20-5 Update

---

10/21/2011 7:07 AM

We are at 7 5/8 casing point of 12,716'. Just finished testing BOPE. Current activity is making a dummy run for liner hanger to check in casing restrictions.

**Forward Plan:**

- Dummy run to 6200'.
- Trip in with reaming assembly and condition hole for logs.
- Run wire line logs.
- Wiper trip.
- Laydown excess drill pipe and HWDP.
- Run liner.
- Cement liner.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
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**OCT 21 2011**

**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 Update**

*T 935 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/22/2011 6:43 AM  
**Subject:** Wolverine State 20-5 Update

---

10/22/2011 6:38 AM

Wash and ream clean out assembly at 10862'.

Logging has been cancelled. Once hole is conditioned 7 5/8" liner will be run and cement at 12716'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**wolvexpl@drillmail.net**

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**OCT 25 2011**

DIV. OF OIL, GAS & MINING

**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROIW 5-20 43-041-5 0006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/23/2011 6:21 AM  
**Subject:** Wolverine State 20-5 Update

---

10/23/2011 6:16 AM

Washing and reaming to condition hole for liner. Logs were cancelled. Currently W&R at 12550'. TD is 12716'.

Once at TD will C&C, POOH to shoe, Circ to give hole time. TIH to TD, POOH. If this TIH is good we will proceed to running the liner.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**Have a current H2S card and be clean shaven.**

**wolvexpl@drillmail.net**

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**OCT 25 2011**

**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 - Notification of Casing and Cementation***T 235 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** ""Daniels, Carol"" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/23/2011 6:08 PM  
**Subject:** Wolverine State 20-5 - Notification of Casing and Cementation  
**CC:** ""Higuera, Ed"" <ehiguera@wolvgas.com>, "Irons, Charlie" <cirons@wolvgas...

---

10/23/2011 6:05 PM

Well: Wolverine State 20-5  
API Well: #430415000600000  
Lease: # UT ML-46605

Currently making wiper trip for casing run. Anticipate begin picking up liner at 2pm Monday afternoon and cementing Tuesday. Will keep you abreast of the updates to this schedule.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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Carol Daniels - Wolverine State 20-5 Update

T 235 R01W 5-20 43-041-50006

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 10/24/2011 6:27 AM  
**Subject:** Wolverine State 20-5 Update

10/24/2011 6:25 AM

TOOH to run liner

DATE	DAY	START TIME	HR	DESCRIPTION
23-Oct	Sunday	14:00	2.00	Wiper trip out to the shoe
23-Oct		16:00	5.00	Circulate at shoe and let hole sit.
		21:00	2.00	Trip in hole
		23:00	4.50	Circulate and condition hole for liner.
24-Oct	Monday	3:30	1.00	Pull out of hole for liner to shoe, stand back all tubulars.
		4:30	0.50	Drop drill pipe rabbit. Pump slug.
		5:00	6.00	PooH for liner, stand back all tubulars.
		11:00	2.00	Rig up casing crew.
		13:00	5.00	PU and run 7 5/8" liner.
		18:00	1.50	Pick up liner hanger
		19:30	11.00	Run in hole with liner on drill pipe. 30 fpm
25-Oct	Tuesday	6:30	4.00	Circulating and setting liner hanger.
		10:30	1.00	Rig up Schlumberger cementers
		11:30	2.00	Cement liner
		13:30	1.00	Set packer.
		14:30	1.50	Circulate long way.
		16:00	10.00	POOH with running tool. Lay down excess drill string.
26-Oct	Wednesday	2:00		

Tom Zupan  
Drilling Supervisor  
Wolverine Gas and Oil Company of Utah, LLC  
Wolverine State 20-5, AFE 246  
Rig (970) 361-3276  
Cell (970) 314-8219 (no reception on this location)  
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Carol Daniels - Wolverine State 20-5 Update

T 235 R 014 S-20 43-041-50006

From: "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
 To: "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
 Date: 10/26/2011 6:34 AM  
 Subject: Wolverine State 20-5 Update

10/26/2011 6:29 AM

Running 7 5/8" liner at 11,420'.

ESTIMATED SCHEDULE				
DATE	DAY	START TIME	HR	DESCRIPTION
23-Oct	Sunday	14:00	2.00	Wiper trip out to the shoe
23-Oct		16:00	5.00	Circulate at shoe and let hole sit.
		21:00	2.00	Trip in hole
		23:00	4.50	Circulate and condition hole for liner.
24-Oct	Monday	3:30	1.00	Pull out of hole for liner to shoe, stand back all tubulars.
		4:30	0.50	Drop drill pipe rabbit. Pump slug.
		5:00	4.50	Pooh for liner, stand back all dp.
		9:30	3.00	Lay down Bit, Stabs, XO's, HWDP and Jars
		12:30	1.50	Pull wear bushing and hammer up standpipe. Rig service.
		14:00	12.50	Clean floor, safety meeting and rig up casing crew, hot shot new elevators.
25-Oct	Tuesday	2:30	8.50	PU and run 7 5/8" liner.
		11:00	4.00	Pick up liner hanger, rig down casing crew.
		15:00	18.00	Run in hole, precautionary wash with liner on dp. 30 fpm
26-Oct	Wednesday	9:00	4.00	Circulating and setting liner hanger.
		13:00	1.00	Rig up Schlumberger cementers
		14:00	2.00	Cement liner
		16:00	1.00	Set packer.
		17:00	1.50	Circulate long way.
		18:30	10.00	POOH with running tool. Lay down excess drill string.
27-Oct	Thursday	4:30		

Tom Zupan  
 Drilling Supervisor  
 Wolverine Gas and Oil Company of Utah, LLC  
 Wolverine State 20-5, AFE 246  
 Rig (970) 361-3276  
 Cell (970) 314-8219 (no reception on this location)  
 H2S Green Flag location  
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OCT 26 2011

DIV. OF OIL, GAS &amp; MINING

**Carol Daniels - Wolverine State 20-5 Update**

T 235 ROW 5-20

43-041-50006

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/28/2011 6:50 AM  
**Subject:** Wolverine State 20-5 Update

---

10/28/2011 6:46 AM

WOC and cleaning mud tanks.

NOTE: Will change lower DP rams to Variable Bore Rams. Will re-test BOP rams altered. Test will be in 24-30 hour from now

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**  
**wolvexpl@drillmail.net**

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OCT 28 2011

OIL, GAS &amp; MINING

**Carol Daniels - Wolverine State 20-5 Update** *T 235 R01W5-20 43-041-50006*

---

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/29/2011 7:27 AM  
**Subject:** Wolverine State 20-5 Update

---

10/29/2011 7:24 AM

IPS testing Variable Bore Ram

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**  
**wolvexpl@drillmail.net**

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DIV. OF OIL, GAS & MINING

**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01W S-20 43-041-5000*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/30/2011 6:27 AM  
**Subject:** Wolverine State 20-5 Update

---

10/30/2011 6:21 AM

TIH w/XT-49 tapered DP string at 2,670'

IPS tested Variable Bore Rams

Plan to drill to 10' above shoe, swap OBM for WBM, pressure test casing with IPS, drill out shoe, run FIT w/IPS to 10 ppg EMW, drill

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R014S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 10/31/2011 6:23 AM  
**Subject:** Wolverine State 20-5 Update

---

10/31/2011 6:15 AM

Bit depth 12,695', drilled latch down collar and cement. The shoe has not been drilled.

Cleaning shaker, sand traps and pumps after swapping out OBM for WBM

Plan to test casing to EMW 10ppg when sand trap is clean.

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update***TJDS ROWS-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "'Daniels, Carol'" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/1/2011 7:01 AM  
**Subject:** Wolverine State 20-5 Update

---

11/1/2011 6:58 AM

TIH w/TruTrak @ 300'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
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**wolvexpl@drillmail.net**

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DIV. OF OIL, GAS &amp; MINING

**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "'Daniels, Carol'" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 11/2/2011 7:08 AM  
**Subject:** Wolverine State 20-5 Update

---

11/2/2011 7:05 AM

Drilling at 12,781', PR 5 fph, TD has not been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**DIV. OF OIL, GAS & MINING**

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>			
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UT ML-46605			
<b>1. TYPE OF WELL</b> Oil Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>			
<b>2. NAME OF OPERATOR:</b> WOLVERINE GAS & OIL COMPANY OF UTAH, LLC		<b>7. UNIT or CA AGREEMENT NAME:</b> WOLVERINE			
<b>3. ADDRESS OF OPERATOR:</b> One Riverfront Plaza 55 Campau NW, Grand Rapids, MI, 49503		<b>8. WELL NAME and NUMBER:</b> WOLVERINE STATE 20-5			
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 0342 FNL 1901 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NENW Section: 20 Township: 23.0S Range: 01.0W Meridian: S		<b>9. API NUMBER:</b> 43041500060000			
<b>PHONE NUMBER:</b> 616 458-1150 Ext		<b>9. FIELD and POOL or WILDCAT:</b> COVENANT			
<b>COUNTY:</b> SEVIER		<b>STATE:</b> UTAH			
<b>11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA</b>					
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>				
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 11/14/2011  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ACIDIZE  <input type="checkbox"/> CHANGE TO PREVIOUS PLANS  <input type="checkbox"/> CHANGE WELL STATUS  <input checked="" type="checkbox"/> DEEPEN  <input type="checkbox"/> OPERATOR CHANGE  <input type="checkbox"/> PRODUCTION START OR RESUME  <input type="checkbox"/> REPERFORATE CURRENT FORMATION  <input type="checkbox"/> TUBING REPAIR  <input type="checkbox"/> WATER SHUTOFF  <input type="checkbox"/> WILDCAT WELL DETERMINATION         </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> ALTER CASING  <input type="checkbox"/> CHANGE TUBING  <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS  <input type="checkbox"/> FRACTURE TREAT  <input type="checkbox"/> PLUG AND ABANDON  <input type="checkbox"/> RECLAMATION OF WELL SITE  <input type="checkbox"/> SIDETRACK TO REPAIR WELL  <input type="checkbox"/> VENT OR FLARE  <input type="checkbox"/> SI TA STATUS EXTENSION  <input type="checkbox"/> OTHER         </td> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> CASING REPAIR  <input type="checkbox"/> CHANGE WELL NAME  <input type="checkbox"/> CONVERT WELL TYPE  <input type="checkbox"/> NEW CONSTRUCTION  <input type="checkbox"/> PLUG BACK  <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION  <input type="checkbox"/> TEMPORARY ABANDON  <input type="checkbox"/> WATER DISPOSAL  <input type="checkbox"/> APD EXTENSION            OTHER: <input style="width: 100px;" type="text"/> </td> </tr> </table>		<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>
<input type="checkbox"/> ACIDIZE <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE WELL STATUS <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> ALTER CASING <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> OTHER	<input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PLUG BACK <input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>			
<b>12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.</b>  This sundry covers the Wolverine State 20-5, which has reached its permitted depth of 13,800' but has not reached the target formations. UDOGM was contacted on Friday, 11-11-11, requesting permission to continue drilling beyond the original APD depth. Current drilling is running deep to expected target formations. Additional drilling will be required to reach the anticipated Twin Creek and Navajo formations. Wolverine estimates drilling to 14,900' to reach and evaluate the Twin Creek and Navajo formations. Dustin Doucet, UDOGM, granted verbal approval on 11-11-11 to continue drilling to 14,900' and requested a follow up Sundry to document the change in plans and verbal approval.					
<b>NAME (PLEASE PRINT)</b> Helene Bardolph	<b>PHONE NUMBER</b> 616 458-1150	<b>TITLE</b> Engineering Administrative Assistant			
<b>SIGNATURE</b> N/A	<b>DATE</b> 11/14/2011				

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**Carol Daniels - Wolverine State 20-5 Update**

*T73S R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/5/2011 7:08 AM  
**Subject:** Wolverine State 20-5 Update

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11/5/2011 6:56 AM

Drilling 13,132', PR 30 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**  
**wolvexpl@drillmail.net**

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DIV. OF OIL, GAS & MINING

**Carol Daniels - Wolverine State 20-5 update**

*T235 R014 S-20 43-041-5006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** ""Daniels, Carol"" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 11/6/2011 10:31 AM  
**Subject:** Wolverine State 20-5 update

---

11/6/2011 10:26 AM

Drilling at 13,505', Casing point has not been determined, but geologic markers have been found

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Have a current H2S card and be clean shaven.**  
**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R 01WS-20 43-041-5000b*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "'Daniels, Carol'" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/8/2011 7:01 AM  
**Subject:** Wolverine State 20-5 Update

---

11/8/2011 6:58 AM

Drilling at 13,541' PR 15 fph, Casing point has not been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update***T23S R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/9/2011 7:08 AM  
**Subject:** Wolverine State 20-5 Update

11/9/2011 7:05 AM

Drilling @ 13,693', PR 5 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W.S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/3/2011 1:02 PM  
**Subject:** Wolverine State 20-5 Update

---

11/3/2011 1:00 PM

Hole depth 12,987, Short tripping at 11,525

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 11/4/2011 7:02 AM  
**Subject:** Wolverine State 20-5 Update

---

11/4/2011 6:59 AM

TOH @ 748'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R014 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/10/2011 11:45 AM  
**Subject:** Wolverine State 20-5 Update

---

11/10/2011 11:42 AM

TOH for new bit at 13,761'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R 01 W 5 20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/11/2011 7:01 AM  
**Subject:** Wolverine State 20-5 Update

---

11/11/2011 6:59 AM

Drilling at 13764'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
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[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** ""Daniels, Carol"" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/12/2011 7:14 AM  
**Subject:** Wolverine State 20-5 Update

---

11/12/2011 7:12 AM

Tripped out for failed Trutrack tool and bit. TD = 13826'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
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**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROWS-20 43-04L-5006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 11/13/2011 6:11 AM  
**Subject:** Wolverine State 20-5 Update

---

11/13/2011 6:10 AM

Sliding with ABH Motor at 13852'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R0145-20 43041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/14/2011 6:25 AM  
**Subject:** Wolverine State 20-5 Update

---

11/14/2011 6:24 AM

Drilling at 13973'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/15/2011 6:55 AM  
**Subject:** Wolverine State 20-5 Update

---

11/15/2011 6:53 AM

Drilling at 14071'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROLW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/16/2011 6:35 AM  
**Subject:** Wolverine State 20-5 Update

---

11/16/2011 6:33 AM

Trip in hole with new bit at 13100'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW S-70 43-041-5006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/17/2011 6:25 AM  
**Subject:** Wolverine State 20-5 Update

---

11/17/2011 6:23 AM

Drilling at 14157'

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
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[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

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**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW S-20 43-041-5000*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 11/18/2011 6:54 AM  
**Subject:** Wolverine State 20-5 Update

---

11/18/2011 6:53 AM

POOH to check bit, will test BOP's on this trip.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

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**OIL GAS & MINING**

**Carol Daniels - Wolverine State 20-5 - Notification of BOPE test***T 235 ROW 5-20 43-41-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 11/18/2011 6:59 AM  
**Subject:** Wolverine State 20-5 - Notification of BOPE test  
**CC:** "Ed Higuera" <ehiguera@wolvgas.com>, "Irons, Charlie" <cirons@wolvgas....

---

11/18/2011 6:56 AM

Currently POOH to check bit. We will test BOP's on this trip out. Sorry for the short notice as the trip was unexpected. Anticipate testing at 11am.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROWS-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 11/19/2011 8:29 AM  
**Subject:** Wolverine State 20-5 Update

---

11/19/2011 8:26 AM

Hole depth 14,221', TOH at 8,870'

30 day BOP test preformed 11/18/11 by IPS

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 735 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "'Daniels, Carol'" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/21/2011 6:11 AM  
**Subject:** Wolverine State 20-5 Update

---

11/21/2011 6:08 AM

TIH @ 4,680' w/bit, hole depth 14,225'

Casing point has been determined

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T239 ROWS-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/22/2011 6:12 AM  
**Subject:** Wolverine State 20-5 Update

---

11/22/2011 6:08 AM

TOH for bit at 8,568', Hole depth 14,235', Permit depth 15,000'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update** *T 835 ROW 5-20 43041-50006*

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**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/23/2011 5:28 AM  
**Subject:** Wolverine State 20-5 Update

---

11/23/2011 5:25 AM

Drilling @ 14258', PR 3 fph

Permit depth 15,000'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update***T 735 R0145-20 43-04150006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 11/24/2011 5:22 AM  
**Subject:** Wolverine State 20-5 Update

---

11/24/2011 5:19 AM

TIH at 11,128', hole depth 14,265'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 update**

*T235 ROLW 5-26 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/25/2011 4:25 AM  
**Subject:** Wolverine State 20-5 update

---

11/25/2011 4:23 AM

Drilling at 14,289', 2 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W S-20 4304150006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/26/2011 6:15 AM  
**Subject:** Wolverine State 20-5 Update

---

11/26/2011 6:12 AM

Drilling at 14,313', PR 1-1.5 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R 01 W 5-20 43-041 50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/27/2011 5:58 AM  
**Subject:** Wolverine State 20-5 Update

---

11/27/2011 5:55 AM

TOH for new bit, Bit depth 0', hole depth 14,323'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 11/30/2011 5:17 AM  
**Subject:** Wolverine State 20-5 Update

---

11/30/2011 5:14 AM

Reaming to bottom @ 14,313'

Hole depth 14,232'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update** *T 235 R 01W S-20 43-041-50006*

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**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/1/2011 7:05 AM  
**Subject:** Wolverine State 20-5 Update

---

12/1/2011 7:01 AM

Preparing to run VSP Vertical Seismic Profile

Hole depth 14,331'

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update** *T235 ROW 5-20 43 04 50006*

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**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/2/2011 4:34 AM  
**Subject:** Wolverine State 20-5 Update

---

12/2/2011 4:30 AM

Running VSP log

The plan is to drill while the VSP is being processed then either open hole log or continue to drill.

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246, Sevier, UT**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

T 235 R01W S-20 43-041-50006

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/3/2011 7:03 AM  
**Subject:** Wolverine State 20-5 Update

---

12/3/2011 7:01 AM

Rotary Drilling at 14367'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**Carol Daniels - Wolverine State 20-5 Update** *T235 ROW 5-20 43-041-50006*

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**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/4/2011 7:12 AM  
**Subject:** Wolverine State 20-5 Update

---

12/4/2011 7:10 AM

Trip in with new bit at 3861'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROWS-26 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/5/2011 6:25 AM  
**Subject:** Wolverine State 20-5 Update

---

12/5/2011 6:23 AM

Rotary drilling at 14488'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 12/6/2011 6:36 AM  
**Subject:** Wolverine State 20-5 Update

---

12/6/2011 6:34 AM

TD = 14565'. Changing bit and roller reamers.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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Carol Daniels - Wolverine State 20-5 Update *T 235 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/8/2011 7:09 AM  
**Subject:** Wolverine State 20-5 Update

---

12/8/2011 7:07 AM

Wireline log run #1.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW S-20 43-041-5006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/7/2011 7:18 AM  
**Subject:** Wolverine State 20-5 Update

---

12/7/2011 7:16 AM

Rotary Drilling at 14627'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01WS-20 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/9/2011 7:01 AM  
**Subject:** Wolverine State 20-5 Update

---

12/9/2011 6:59 AM

Repairing Hydraulic hose on ST80, tripping in with cement stinger at 1008'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
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**Carol Daniels - Wolverine State 20-5 - Notification of Casing and Cementation**

---

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/9/2011 10:52 AM  
**Subject:** Wolverine State 20-5 - Notification of Casing and Cementation  
**CC:** "Higuera, Ed" <ehiguera@wolvgas.com>, "Irons, Charlie" <ciron@wolvgas.com>

---

12/9/2011 10:46 AM

*T 235 ROW S-20  
43-041-50006*

Well: Wolverine State 20-5  
API Well: #430415000600000  
Lease: # UT ML-46605

Currently waiting on partner approvals and tripping in hole with 2 7/8" cement stinger. When approvals are given we will mobilize Schlumberger to pump cement plugs as discussed between Dustin Doucet and Jack Magill. It's anticipated that plugging will commence this evening/ night. Updates will be issued as they become available.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 - Notification of Casing and Cementation***T235 R 01W 5-20 4304150006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/9/2011 5:01 PM  
**Subject:** Wolverine State 20-5 - Notification of Casing and Cementation  
**CC:** "Higuera, Ed" <ehiguera@wolvgas.com>, "Irons, Charlie" <cirons@wolvgas...>

12/9/2011 4:57 PM

We have just received all the partner approvals for P&A. We are waiting on Schlumberger and anticipate they will arrive at about midnight. We have our string in the hole at 12680 and will lower it to the first plug depth as they arrive.

12/9/2011 10:46 AM

Well: Wolverine State 20-5  
API Well: #430415000600000  
Lease: # UT ML-46605

Currently waiting on partner approvals and tripping in hole with 2 7/8" cement stinger. When approvals are given we will mobilize Schlumberger to pump cement plugs as discussed between Dustin Doucet and Jack Magill. It's anticipated that plugging will commence this evening/ night. Updates will be issued as they become available.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 Update**

*T235 RO1W 5-20 4304150006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/10/2011 6:17 AM  
**Subject:** Wolverine State 20-5 Update

---

12/10/2011 6:15 AM

Waiting on Schlumberger Cementers for P&A, tripping in from casing shoe to Plug #1 depth.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
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**Carol Daniels - Wolverine State 20-5 Update** *T 235 R01W 5-20 4304150006*

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**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/11/2011 6:22 AM  
**Subject:** Wolverine State 20-5 Update

---

12/11/2011 6:20 AM

Lay down drill pipe after plug #3.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
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**Carol Daniels - Wolverine State 20-5 - Notification of Casing and Cementation**

---

*T 235 ROW 5-20 4304150006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 12/11/2011 8:09 AM  
**Subject:** Wolverine State 20-5 - Notification of Casing and Cementation  
**CC:** "Higuera, Ed" <ehiguera@wolvgas.com>, "Irons, Charlie" <cirons@wolvgas...

---

12/11/2011 8:04 AM

We will set the fourth plug back plug this morning. We anticipate to start running 5 ½" casing very early Monday morning and cementing Monday afternoon. I will notify you if there are any significant changes to the schedule.

Well: Wolverine State 20-5  
API Well: #430415000600000  
Lease: # UT ML-46605

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 233 ROW 520 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/12/2011 6:22 AM  
**Subject:** Wolverine State 20-5 Update

---

12/12/2011 6:21 AM

Prepared to run 5 ½" casing.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**  
**H2S Green Flag location**  
**Have a current H2S card and be clean shaven.**

**wolvexpl@drillmail.net**

**RECEIVED**

**DEC 13 2011**

**DIV. OF OIL, GAS & MINING**



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Page 1 of 1

**Carol Daniels - Wolverine State 20-5 Update**

*T235 ROW 5-20 43-04-5000*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/14/2011 7:10 AM  
**Subject:** Wolverine State 20-5 Update

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**12/14/2011 7:04 AM**

**Tagged cement plug #2 inside 7 5/8" liner at 12619'. Liner shoe at 12721'. POOH with 5.5" gage ring.**

**Tom Zupan  
Drilling Supervisor  
Wolverine Gas and Oil Company of Utah, LLC  
Wolverine State 20-5, AFE 246  
Rig (970) 361-3276  
Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T205 ROW S-26 43-041-50006*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** ""Daniels, Carol"" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...  
**Date:** 12/15/2011 6:20 AM  
**Subject:** Wolverine State 20-5 Update

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**12/15/2011 6:19 AM**

**Running 5 ½" casing at 4142'.**

**Tom Zupan  
Drilling Supervisor  
Wolverine Gas and Oil Company of Utah, LLC  
Wolverine State 20-5, AFE 246  
Rig (970) 361-3276  
Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

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**DEC 1<sup>5</sup> 2011**

**DIV. OF OIL, GAS & MINING**

**Carol Daniels - Wolverine State 20-5 Update**

T 935 R014 S-20 43-041-50006

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 12/16/2011 6:45 AM  
**Subject:** Wolverine State 20-5 Update

---

**12/16/2011 6:43 AM**

**Prepare to set slips through stack.**

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219 (no reception on this location)**

**wolvexpl@drillmail.net**

**RECEIVED**

**DEC 16 2011**

**DIV. OF OIL, GAS & MINING**

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 6

**ENTITY ACTION FORM**

Operator: Wolverine Gas & Oil Company of Utah, LLC Operator Account Number: N 1655  
Address: 55 Campau NW  
city Grand Rapids  
state MI zip 49503 Phone Number: (616) 458-1150

**Well 1**

API Number	Well Name	QQ	Sec	Twp	Rng	County
4304150006	Wolverine State 20-5	NENW	20	23S	1W	Sevier
Action Code	Current Entity Number	New Entity Number	Spud Date	Entity Assignment Effective Date		
C	18096	13995	6/16/2011	12/ / 2011		
Comments: New BHL (after plugback): 1331' FNL, 1154' FWL, Sec 20, T43S R13E NAVA BHL = SWNW <b>CONFIDENTIAL</b> / 31 / 2012						

**Well 2**

API Number	Well Name	QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date	Entity Assignment Effective Date		
Comments:						

**Well 3**

API Number	Well Name	QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date	Entity Assignment Effective Date		
Comments:						

**ACTION CODES:**

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

Helene Bardolph

Name (Please Print)

*Helene Bardolph*

Signature

Engineering Assistant

Title

1/31/2012

Date

**RECEIVED**

**JAN 31 2012**

(5/2000)

**DIV. OF OIL, GAS & MINING**

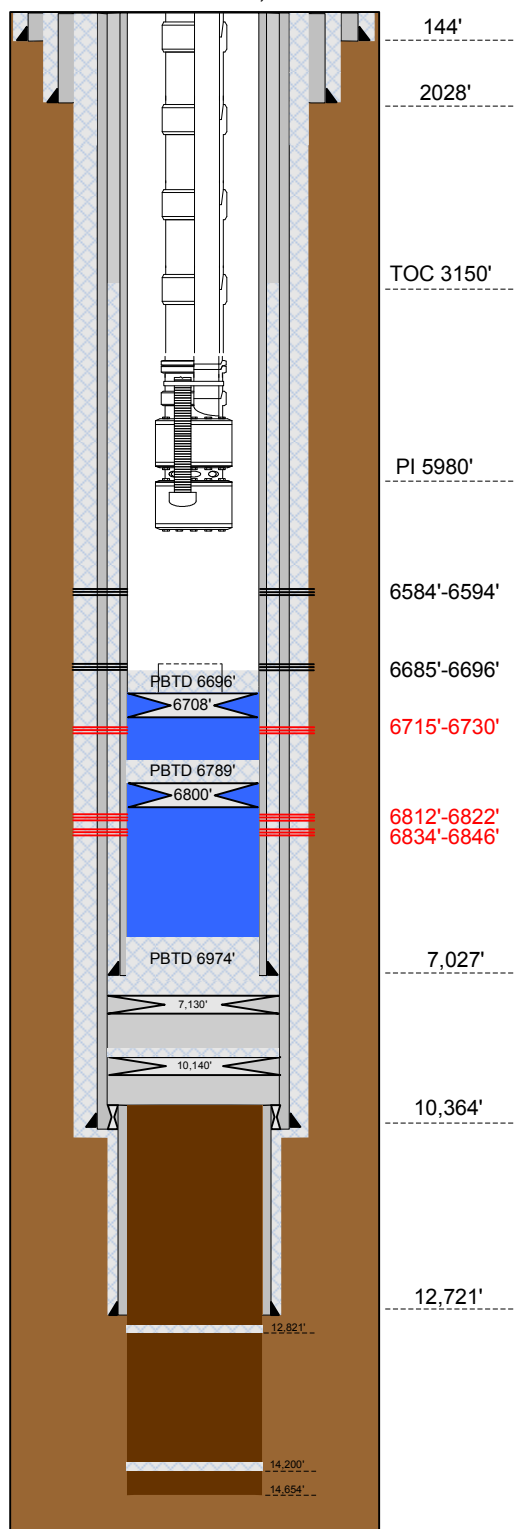
<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UT ML-46605
<b>1. TYPE OF WELL</b> Oil Well		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
<b>2. NAME OF OPERATOR:</b> WOLVERINE GAS & OIL COMPANY OF UTAH, LLC		<b>7. UNIT or CA AGREEMENT NAME:</b> WOLVERINE
<b>3. ADDRESS OF OPERATOR:</b> One Riverfront Plaza 55 Campau NW, Grand Rapids, MI, 49503		<b>8. WELL NAME and NUMBER:</b> WOLVERINE STATE 20-5
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 0342 FNL 1901 FWL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: NENW Section: 20 Township: 23.0S Range: 01.0W Meridian: S		<b>9. API NUMBER:</b> 43041500060000
<b>PHONE NUMBER:</b> 616 458-1150 Ext		<b>9. FIELD and POOL or WILDCAT:</b> COVENANT
<b>COUNTY:</b> SEVIER		<b>STATE:</b> UTAH
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> DEEPEN <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> CONVERT WELL TYPE <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> PRODUCTION START OR RESUME <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> WATER SHUTOFF <input type="checkbox"/> SI TA STATUS EXTENSION <input type="checkbox"/> WILDCAT WELL DETERMINATION <input type="checkbox"/> OTHER	
<input checked="" type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion: 12/16/2011	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION <input type="checkbox"/> TEMPORARY ABANDON <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> APD EXTENSION OTHER: <input style="width: 100px;" type="text"/>	
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> DRILLING REPORT Report Date:	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. Wolverine Gas & Oil Co. of Utah, LLC concluded plug back operations on the Wolverine State 20-5 December 16, 2011. All referenced depths listed are in measured depth (MD). - Plug #1: Set balanced plug at 14,200' with 25 bbls of 15.8 ppg Class G 1.53 cuft/sk cement in 6-3/4" open hole - Plug #2: Set balanced plug at 12,281' with 23.4 bbls of 15.8 ppg Class G 1.53 cuft/sk cement in 6-3/4" open hole - Plug #3: Set balanced plug at 10,300' with 34 bbls of 15.8 ppg Class G 1.16 cuft/sk cement in 9-5/8" casing - Plug #4: Set balanced plug at 7,400' with 38 bbls of 15.8 ppg Class G 1.16 cuft/sk cement in 9-5/8" casing - RIH with 5-1/2" gauge ring and tag plug #2 at 12,619' - Set 9-5/8" 53.5# CIBP at 10,140' and dump bail 10' of cement to 10,130' - Set 9-5/8" 53.5# CIBP at 7,030' and dump bail 10' of cement to 7,020' - RIH with 5-1/2" casing to 7,027' and cement to 3150'		
<b>NAME (PLEASE PRINT)</b> Matthew Rivers		<b>PHONE NUMBER</b> 616 458-1150
<b>SIGNATURE</b> N/A		<b>TITLE</b> Production Engineer
<b>DATE</b> 2/17/2012		<b>Accepted by the Utah Division of Oil, Gas and Mining</b> <b>FOR RECORD ONLY</b> February 21, 2012



**Wolverine State 20-5**  
**API # 43-041-50006**  
**Covenant Field**  
**Section 20, T23S, R1W**  
**Sevier County, Utah**

Ground Elevation: 5,874'

KB Elevation: 5,897'

**(Not to Scale)****Deviated Well**

Surface: 342' FNL 1901' FWL, NE NW, 20-23S-1W  
 Top of Pay (6,544' MD): 1331' FNL, 1154' FWL, SW NW, 20-23S-1W  
 Total Depth (14,654' MD): 2005' FSL, 873' FWL, NW SW, 20-23S-1W

**Conductor Casing (06/20/11)**

Size: 20", 0.25" wall  
 Depth Landed: 144' KB  
 Cement Data: Cemented to surface

**Surface Casing (07/06/11)**

Size/Wt/Grade: 13-3/8", 68#, J-55, BTC, 8rd  
 Depth Landed: 2028' KB  
 Cement Data: 839 sks G (12.5 ppg, 2.12 cf/sk), 299 sks G (14.0 ppg, 1.54 cf/sk)

**Intermediate Casing (09/17/11)**

Size/Wt/Grade: 9-5/8", 53.5/47.0#, L-80, LTC, 8rd  
 Depth Landed: 10,364' KB  
 Stage Collar: 6912' KB  
 Cement Data: Stage 1 502 sks Prem A (13.0 ppg, 2.54 cf/sk)  
 Stage 2 Lead – 1,028 sks Poz G (12.5 ppg, 1.87 cf/sk)  
 Tail – 178 sks Poz/TX (14.5 ppg, 1.29 cf/sk)

**Intermediate Liner (10/27/11)**

Size/Wt/Grade: 7-5/8", 29.7#, P-110HC, SJ2  
 Depth Landed: 12,721' KB  
 Top of Liner: 10,172' KB  
 Cement Data: 185 sks (14.4 ppg, 1.29 cf/sk)

**Navajo Perforations**

6584' - 6594' MD (6307' - 6316' TVD), 10', 60 holes (1/31/12)  
 6685' - 6696' MD (6395' - 6404' TVD), 11', 33 holes (1/11/12)  
 6715' - 6730' MD (6421' - 6434' TVD), 15', 45 holes (1/11/12)  
 6812' - 6822' MD (6505' - 6513' TVD), 10', 60 holes (1/5/12)  
 6834' - 6846' MD (6523' - 6533' TVD), 10', 60 holes (1/5/12)

Mid-Perf = 6640' MD (6356' TVD), 21' M (18' TV), 93 holes

**Tubing (02/09/12)** (see Page 2 for details)

End of BHA 6006' WLM (5796' TVD)  
 Centinel 6001' WLM (5792' TVD)  
 Pump intake 5980' WLM (5772' TVD)  
 Seating Nipple 5933' WLM (5730' TVD)

**PBTD**

(01/18/12) 6696' WLM (6405' TVD) Tubing stump at 6686' WLM



**Wolverine State 20-5**  
**API # 43-041-50006**  
**Covenant Field**  
**Section 20, T23S, R1W**  
**Sevier County, Utah**

**Tubing Detail (02/09/12)**

	23.00	KB
	-3.00	Landed above GL
190	5920.76	Tubing - 2-7/8", 6.5#, N-80, EUE, 8rd
1	1.10	Cup type SN
1	31.91	Tubing - 2-7/8", 6.5#, N-80, EUE, 8rd
1	0.50	SS Drain sub
1	13.76	Pump - 130 stage P8 model PLSSD (400 series)
1	6.10	Seal - FSB3 DB HL DM (400 series)
1	15.29	Motor - 53/1505/26 MSP (375 series)
1	4.10	Downhole pressure sensor, Centinel III
	-8.0	Wireline correction
<hr/>		
	6005.52'	EOT (6006' KB MD-WLM, 5796' TVD)

Note: No check valve in this well.

Tubing capacity = 0.00579 Bbl/ft, Burst = 10570 psi, Joint Yield = 144960 lbs

**Directional Data:**

<u>MD</u>	<u>TVD</u>	<u>Incl.</u>	<u>MD</u>	<u>TVD</u>	<u>Incl.</u>
500	500	0.3	4000	3987	17.8
750	750	0.6	4500	4446	25.1
1000	1000	1.4	5000	4898	25.5
1250	1250	2.2	5500	4346	26.7
1500	1500	1.9	6000	5791	27.3
2000	1999	1.6	6500	6234	29.1
2500	2499	0.1	7000	6306	30.2
3000	2999	0.1	7027	6690	30.3
3500	3498	6.9			

**Stimulation:**

01/11/12: 6685'-6696' & 6715'-6730' w/ 3500 gallons 7-1/2% FE HCL acid, 300 gallons of Matriseal (700 lbs TLC-80 & 231 gallons of Methanol), and 50 buoyant balls @ 2 BPM ATP = 1400 psi ISIP 606 psi

**Wellhead Information:**

- Tubing head flange is 7-1/16", 5M with a 2-7/8" EUE 8rd top connection.

**Notes:**

SHL: 38.794285389, -111.934686639 (38d47'39.4274", -111d56'04.8719" NAD83)  
 (9/12/11): Available Logs: DLL/MSFL, SDL/DSN, FWS, XRMI, CBL

MAR 09 2012

## DIV. OF OIL, GAS &amp; MINING

Form 3160-5  
(April 2004)UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
OMB No. 1004-0137  
Expires: March 31, 2007

## SUNDRY NOTICES AND REPORTS ON WELLS

*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE- Other instructions on reverse side.**1. Type of Well  
☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator **Wolverine Gas and Oil Company of Utah, LLC**3a. Address  
**55 Campau NW, Grand Rapids, Michigan 49503-2616**3b. Phone No. (include area code)  
**616-458-1150**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

**At Surface: 342'FNL, 1901'FWL, NWNW, Sec 20, T23S, R1W, S**

5. Lease Serial No.

**UTU 73528**

6. If Indian, Allottee or Tribe Name

**NA**

7. If Unit or CA/Agreement, Name and/or No.

**N/A**

8. Well Name and No.

**Wolverine State 20-5**

9. API Well No.

**43041500060000**

10. Field and Pool, or Exploratory Area

**Covenant Field**

11. County or Parish, State

**Sevier County, Utah**

## 12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA


TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input checked="" type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

**Oil volumes in saleable quantities were recovered during completion operations of the Navajo Formation in this well on February 10, 2012. A production test on February 11, 2012 indicated rates of 220 BOPD and 646 BWPD.**

14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)**Matthew Rivers**Title **Production Engineer**

Signature



Date

**03/01/2012****THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Title

Date

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTRECEIVED  
RECEIVED  
MAR 09 2012  
DIV. OF OIL, GAS & MININGFORM APPROVED  
OMB NO. 1004-0137  
Expires: March 31, 2007

## WELL COMPLETION OR RECOMPLETION REPORT AND LOG

- 1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other  
b. Type of Completion: ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.,  
Other \_\_\_\_\_

2. Name of Operator **Wolverine Gas & Oil Company of Utah, LLC**3. Address **55 Campau NW, Grand Rapids, MI 49503**3a. Phone No. (include area code)  
**616-458-1150**

4. Location of Well (Report location clearly and in accordance with Federal requirements)\*

At surface **342' FNL, 1901' FWL, NENW, Sec 20, T23S, R1W, S**At top prod. interval reported below **1331' FNL, 1154' FWL, NWNW, Sec 20, T23S, R1W, S**At total depth **2005' FSL, 873' FWL, NWSW Sec 20, T23S, R1W, S** **BHL by HSM**14. Date Spudded  
**06/28/2011**15. Date T.D. Reached  
**12/08/2011**16. Date Completed **02/09/2012**  
☐ D & A ☒ Ready to Prod.5. Lease Serial No. **ML 46605**  
~~1111-79620~~6. If Indian, Allottee or Tribe Name  
**NA**7. Unit or CA Agreement Name and No.  
**NA**8. Lease Name and Well No.  
**Wolverine State 20-5**9. AFI Well No.  
**43041500060000**10. Field and Pool, or Exploratory  
**Covenant**11. Sec., T., R., M., on Block and  
Survey or Area **20, 23S, 1W, S**12. County or Parish  
**Sevier**13. State  
**MI**17. Elevations (DF, RKB, RT, GL)\*  
**5897' KB**18. Total Depth: MD **14654**  
TVD **13708** **BTPK**19. Plug Back T.D.: MD **6696**  
TVD **6405** **6398**20. Depth Bridge Plug Set: MD **6988'**  
TVD **6656'**

21. Type Electric &amp; Other Mechanical Logs Run (Submit copy of each)

22. Was well cored? ☒ No ☐ Yes (Submit analysis)  
Was DST run? ☒ No ☐ Yes (Submit report)  
Directional Survey? ☐ No ☒ Yes (Submit copy)

23. Casing and Liner Record (Report all strings set in well)

Hoile Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sk. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
	20"		surface	144'				surface	
17 1/2"	13+ J55	68#	surface	2028'		1138 sx G	399	surface	
12 1/4"	9 5/8 L80	47/53.5#	surface	10,364'	6912'	1708 sx A/G	610	surface	
8 1/2"	7+ P-110	29.7#	10,172'	12,721'		185 sx	43	10,172'	
6 3/4"	5+ L-80	20/23#	surface	7,027'		730 sx	166	3,150'	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2 7/8	6006'	N/A						

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) Navajo	6544'	7689'	6812-6846 (2 intervals)	.41"	130	squeezed
B)			6715-6730 (1 interval)	.41"	45	squeezed
C)			6685-6696 (1 interval)	.41"	33	
D)			6584-6594 (1 interval)	.41"	60	

26. Perforation Record

27. Acid, Fracture, Treatment, Cement Squeeze, etc.

Depth Interval	Amount and Type of Material
6685-6730	3500 gal. 7 1/2% Fe HCL acid with 300 gal. Matriseal & 50 ball sealers

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
02/10/2012	02/11/2012	24	→	220	TR	646	39		ESP
Choke Size	Tbg. Press. Flwg. SI	Csg. Press. 7	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	Pumping
48	SI 22		→	220	TR	646	20		

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

\*(See instructions and spaces for additional data on page 2)

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## 28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

## 28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

29. Disposition of Gas (*Sold, used for fuel, vented, etc.*)

## 30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

## 31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
Navajo	6545	7689		Twin Creek Navajo Kayenta Wingate Chinle Moenkopi Sinbad Black Dragon Kaibab	6130 6545 7689 7913 8315 8980 12489 13080 13478

32. Additional remarks (include plugging procedure):

33. Indicate which items have been attached by placing a check in the appropriate boxes:

- ☒ Electrical/Mechanical Logs (1 full set req'd.)   
 ☒ Geologic Report   
 ☐ DST Report   
 ☒ Directional Survey  
☒ Sundry Notice for plugging and cement verification   
☐ Core Analysis   
☐ Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)\*

Name (please print) Matthew RiyersTitle Production EngineerSignature Date 03/01/2012

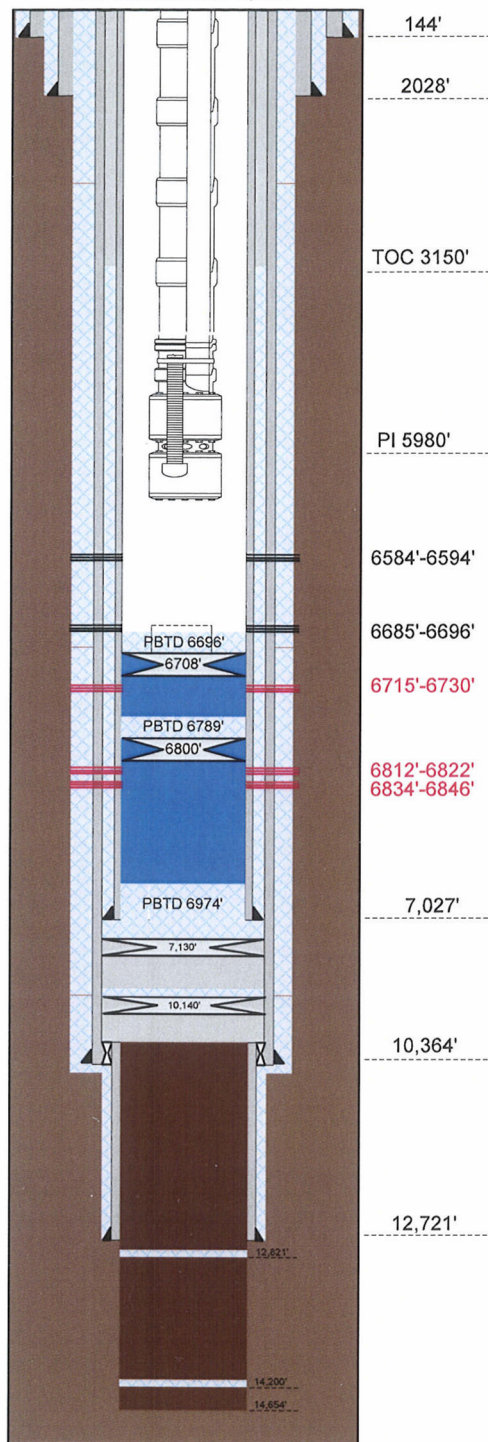
Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

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**Wolverine State 20-5**  
**API # 43-041-50006**  
**Covenant Field**  
**Section 20, T23S, R1W**  
**Sevier County, Utah**

Ground Elevation: 5,874'  
 KB Elevation: 5,897'



**(Not to Scale)**

**Deviated Well**

Surface: 342' FNL 1901' FWL, NE NW, 20-23S-1W  
 Top of Pay (6,544' MD): 1331' FNL, 1154' FWL, SW NW, 20-23S-1W  
 Total Depth (14,654' MD): 2005' FSL, 873' FWL, NW SW, 20-23S-1W

**Conductor Casing (06/20/11)**

Size: 20", 0.25" wall  
 Depth Landed: 144' KB  
 Cement Data: Cemented to surface

**Surface Casing (07/06/11)**

Size/Wt/Grade: 13-3/8", 68#, J-55, BTC, 8rd  
 Depth Landed: 2028' KB  
 Cement Data: 839 sks G (12.5 ppg, 2.12 cf/sk), 299 sks G (14.0 ppg, 1.54 cf/sk)

**Intermediate Casing (09/17/11)**

Size/Wt/Grade: 9-5/8", 53.5/47.0#, L-80, LTC, 8rd  
 Depth Landed: 10,364' KB  
 Stage Collar: 6912' KB  
 Cement Data: Stage 1 502 sks Prem A (13.0 ppg, 2.54 cf/sk)  
 Stage 2 Lead - 1,028 sks Poz G (12.5 ppg, 1.87 cf/sk)  
 Tail - 178 sks Poz/TX (14.5 ppg, 1.29 cf/sk)

**Intermediate Liner (10/27/11)**

Size/Wt/Grade: 7-5/8", 29.7#, P-110HC, SJ2  
 Depth Landed: 12,721' KB  
 Top of Liner: 10,172' KB  
 Cement Data: 185 sks (14.4 ppg, 1.29 cf/sk)

**Production Casing (12/16/11)**

Size/Wt/Grade: 5-1/2", 20#, L-80 VAM HD/LTC @ 3151' - 123'  
 Size/Wt/Grade: 5-1/2", 23#, L-80 TS-MS @ 7027' - 3151'  
 Depth Landed: 7027' KB  
 Cement Data: Lead 325 sks (13.0 ppg, 1.43 cf/sk)  
 Tail 405 sks G (15.8 ppg, 1.16 cf/sk)

**Navajo Perforations**

6584'- 6594' MD (6307'- 6316' TVD), 10', 60 holes (1/31/12)  
 6685'- 6696' MD (6395'- 6404' TVD), 11', 33 holes (1/11/12)  
 6715'- 6730' MD (6421'- 6434' TVD), 15', 45 holes (1/11/12)  
 6812'- 6822' MD (6505'- 6513' TVD), 10', 60 holes (1/5/12)  
 6834'- 6846' MD (6523'- 6533' TVD), 10', 60 holes (1/5/12)

Mid-Perf = 6640' MD (6356' TVD), 21' M (18' TV), 93 holes

**Tubing (02/09/12)** (see Page 2 for details)

End of BHA 6006' WLM (5796' TVD)  
 Centinel 6001' WLM (5792' TVD)  
 Pump intake 5980' WLM (5772' TVD)  
 Seating Nipple 5933' WLM (5730' TVD)

**PBDT**

(01/18/12) 6696' WLM (6405' TVD) Tubing stump at 6686' WLM

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Wolverine State 20-5  
API # 43-041-50006  
Covenant Field  
Section 20, T23S, R1W  
Sevier County, Utah

**Tubing Detail (02/09/12)**

	23.00	KB
	-3.00	Landed above GL
190	5920.76	Tubing - 2-7/8", 6.5#, N-80, EUE, 8rd
1	1.10	Cup type SN
1	31.91	Tubing - 2-7/8", 6.5#, N-80, EUE, 8rd
1	0.50	SS Drain sub
1	13.76	Pump - 130 stage P8 model PLSSD (400 series)
1	6.10	Seal - FSB3 DB HL DM (400 series)
1	15.29	Motor - 53/1505/26 MSP (375 series)
1	4.10	Downhole pressure sensor, Centinel III
	-8.0	Wireline correction
	6005.52'	EOT (6006' KB MD-WLM, 5796' TVD)

Note: No check valve in this well.

Tubing capacity = 0.00579 Bbl/ft, Burst = 10570 psi, Joint Yield = 144960 lbs

**Directional Data:**

<u>MD</u>	<u>TVD</u>	<u>Incl.</u>	<u>MD</u>	<u>TVD</u>	<u>Incl.</u>
500	500	0.3	4000	3987	17.8
750	750	0.6	4500	4446	25.1
1000	1000	1.4	5000	4898	25.5
1250	1250	2.2	5500	4346	26.7
1500	1500	1.9	6000	5791	27.3
2000	1999	1.6	6500	6234	29.1
2500	2499	0.1	7000	6306	30.2
3000	2999	0.1	7027	6690	30.3
3500	3498	6.9			

**Stimulation:**

01/11/12: 6685'-6696' & 6715'-6730' w/ 3500 gallons 7-½% FE HCL acid, 300 gallons of Matriseal (700 lbs TLC-80 & 231 gallons of Methanol), and 50 buoyant balls @ 2 BPM ATP = 1400 psi ISIP 606 psi

**Wellhead Information:**

- Tubing head flange is 7-1/16", 5M with a 2-7/8" EUE 8rd top connection.

**Notes:**

SHL: 38.794285389, -111.934686639 (38d47'39.4274", -111d56'04.8719" NAD83)

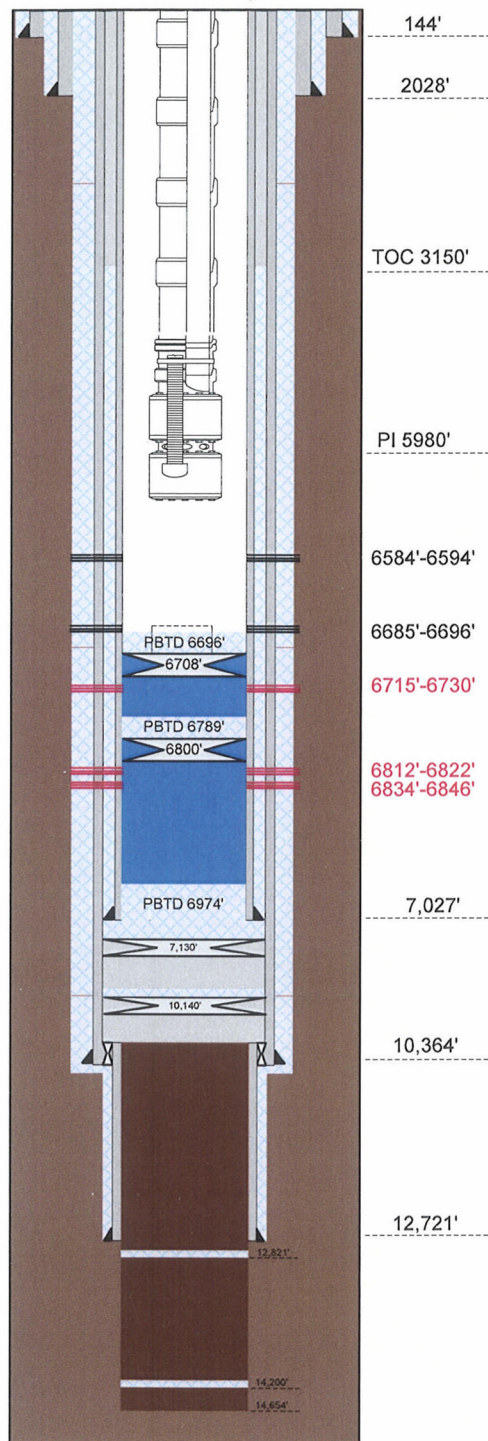
(9/12/11): Available Logs: DLL/MSFL, SDL/DSN, FWS, XRMI, CBL





**Wolverine State 20-5**  
**API # 43-041-50006**  
**Covenant Field**  
**Section 20, T23S, R1W**  
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Total Depth (14,654' MD): 2005' FSL, 873' FWL, NW SW, 20-23S-1W

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Size: 20", 0.25" wall  
Depth Landed: 144' KB  
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Size/Wt/Grade: 5-1/2", 23#, L-80 TS-MS @ 7027' - 3151'  
Depth Landed: 7027' KB  
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Centinel 6001' WLM (5792' TVD)  
Pump intake 5980' WLM (5772' TVD)  
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**PBDT**

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(9/12/11): Available Logs: DLL/MSFL, SDL/DSN, FWS, XRMI, CBL

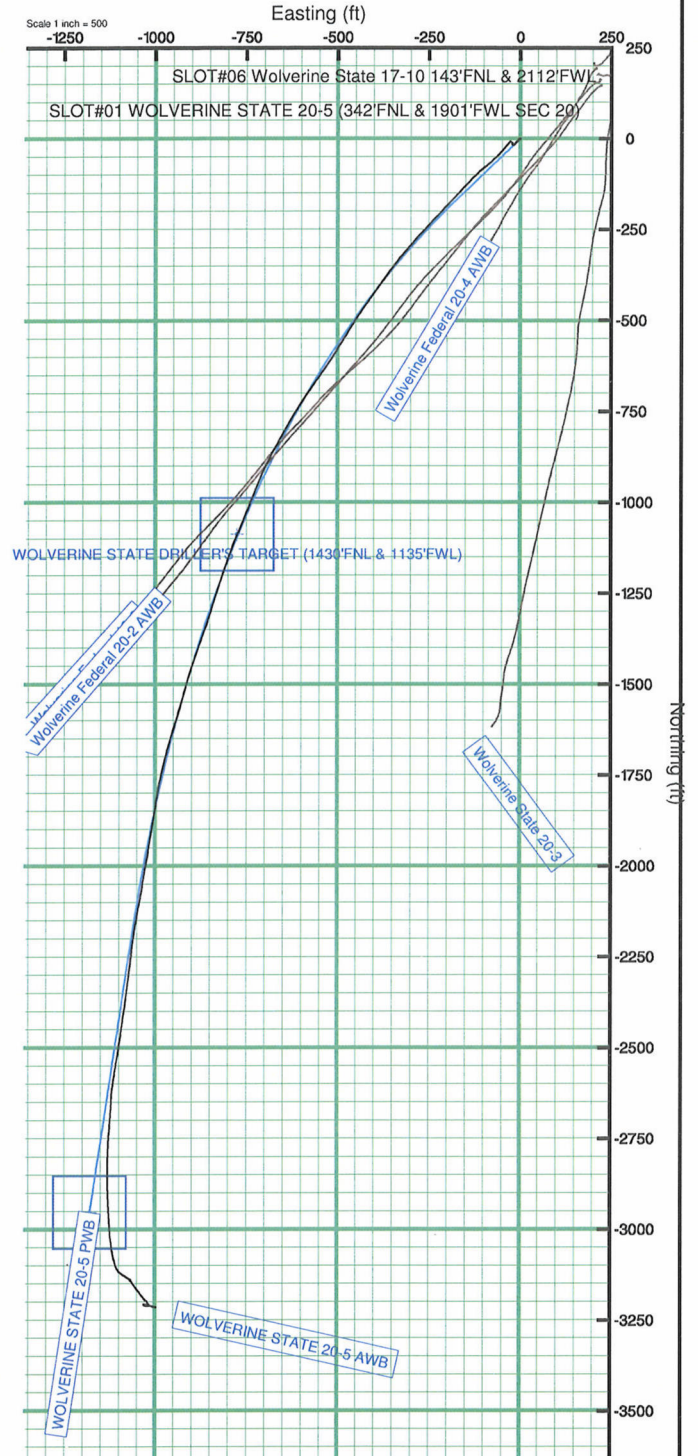
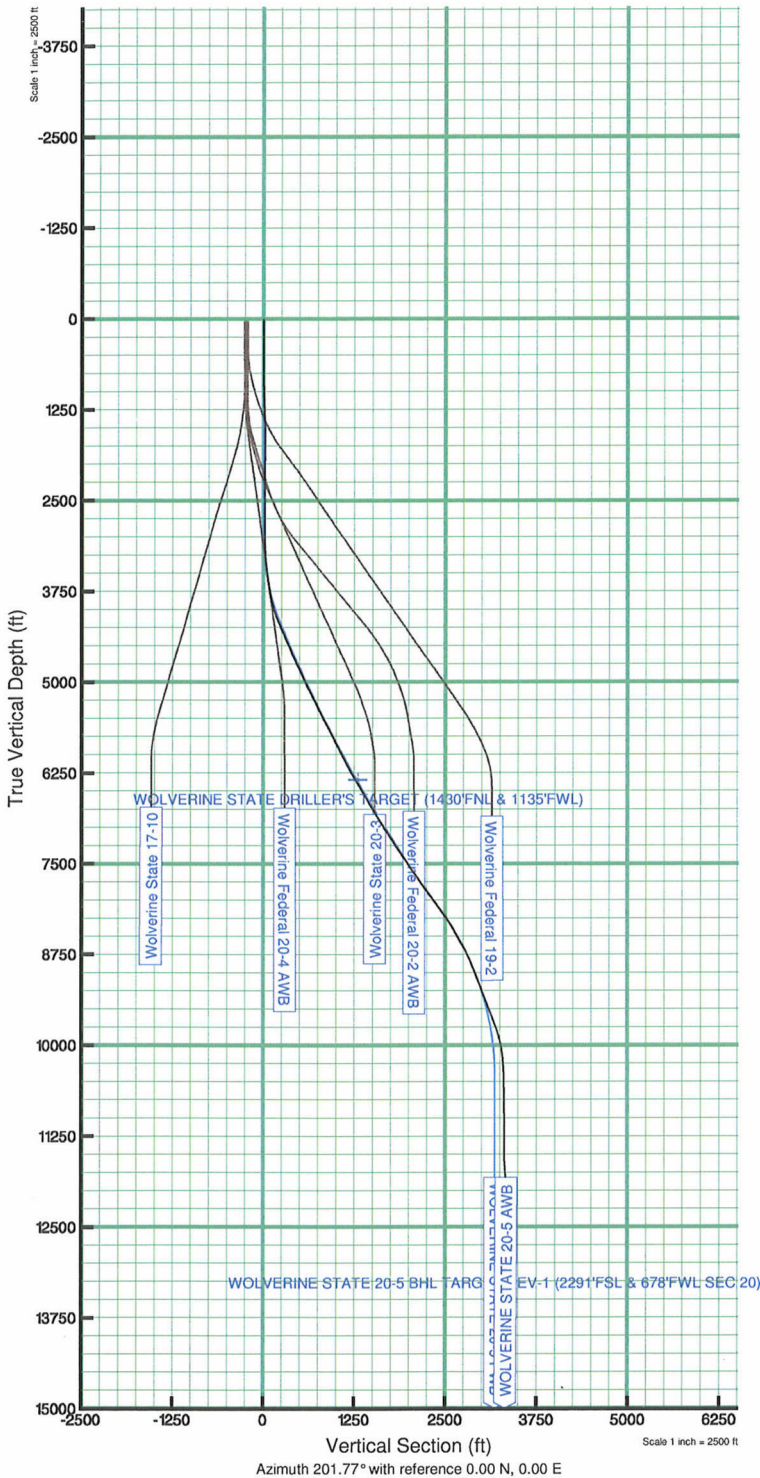


# WOLVERINE GAS & OIL COMPANY

Location: UTAH\_1 Slot: SLOT#01 WOLVERINE STATE 20-5 (342°FNL & 1901°FNL SEC 20)  
 Field: SEVIER COUNTY Well: WOLVERINE STATE 20-5  
 Facility: SEC.20-T23S-R1W Wellbore: WOLVERINE STATE 20-5 AWB



Per reference wellbore WOLVERINE STATE 20-5 AWP	Old System: NAD83 (Lambert Map SP, Central Zone 4302), US feet
True vertical depths are referenced to PATTERSON 304 (RT)	North Reference: True north
Measured depths are referenced to PATTERSON 304 (RT)	Scale: True distance
PATTERSON 304 (RT) to Mean Sea Level: 6387 feet	Depths are in feet
Mean Sea Level to Mapped (A) Slot: SLO#01 WOLVERINE STATE 20-5 (342°FNL & 1901°FNL SEC 20): 0 feet	Created by: wshirley on 12/07/2011
Coordinates are in feet referenced to Slot	



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# ACTUAL WELLPATH REPORT (CSV version)

Prepared by Baker Hughes

Software System: WellArchitect®3.0.0

## REFERENCE WELLPATH IDENTIFICATION

Operator WOLVERINE GAS & OIL COMPANY  
 Area UTAH\_1  
 Field SEVIER COUNTY  
 Facility SEC.20-T23S-R1W  
 Slot SLOT#01 WOLVERINE STATE 20-5 (342'FNL & 1901'FWL SEC 20)  
 Well WOLVERINE STATE 20-5  
 Wellbore WOLVERINE STATE 20-5 AWB  
 Wellpath WOLVERINE STATE 20-5 AWP  
 Sidetrack (none)

## REPORT SETUP INFORMATION

Projection : NAD83 / Lambert Utah SP, Central Zone (4302), US feet

North Refe TRUE

Scale 1.00006

Convergen 0.28° West

Software S WellArchitect®

User Wendfrefx

Report Ger 12/07/2011 at 16:50

DataBase/ WellArchitectDB/ev12.xml

WELLPAT	Local North [ft]	Local East [ft]	Grid East [ft]	Grid North [ft]	Latitude	Longitude
Slot Locati	-208.06	-202.36	1516512	6729869	38°47'39.4"	111°56'04.872"W
Facility Ref			1516715	6730076	38°47'41.4"	111°56'02.316"W
Field Refer			1537058	6764184	38°53'19.4"	111°51'47.146"W

## WELLPATH DATUM

Calculation Minimum curvature

Horizontal Slot

Vertical Re PATTERSON 304 (RT)

MD Refere PATTERSON 304 (RT)

Field Vertic Mean Sea Level

PATTERSON 5897.00ft

PATTERSON 5897.00ft

PATTERSON 5897.00ft

Section Ori 0.00ft

Section Ori 0.00ft

Section Azi 201.77°

## WELLPATH DATA Wellbore: WOLVERINE STATE 20-5 AWB Wellpath: WOLVERINE STATE

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	DLS
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[°/100ft]
0	0	70.75	0	0	0	0	0
117.4	0.35	70.75	117.4	-0.24	0.12	0.34	0.3
213.8	0.29	105.49	213.8	-0.46	0.15	0.85	0.21
306.9	0.28	151.82	306.9	-0.33	-0.11	1.19	0.24



402.1	0.29	183.52	402.1	0.04	-0.56	1.28	0.16
495	0.33	305.08	495	0.21	-0.64	1.05	0.58
591.4	1.02	305.31	591.39	-0.06	0.02	0.12	0.72
685.6	0.85	291.73	685.58	-0.26	0.76	-1.21	0.3
780.8	0.63	239.8	780.77	0.16	0.76	-2.32	0.71
876.3	0.79	223.67	876.26	1.18	0.02	-3.23	0.27
971.6	1.2	218.79	971.55	2.75	-1.24	-4.31	0.44
1066.2	1.79	216.49	1066.11	5.12	-3.2	-5.81	0.63
1160.9	2.14	220.42	1160.76	8.23	-5.73	-7.83	0.4
1256	2.22	220.97	1255.79	11.65	-8.47	-10.19	0.09
1351.2	2.74	226.02	1350.9	15.47	-11.45	-13.04	0.59
1447	2.38	227.54	1446.6	19.34	-14.38	-16.15	0.38
1542.8	1.33	242.56	1542.35	21.98	-16.23	-18.61	1.2
1637.9	0.77	309.77	1637.44	22.62	-16.33	-20.08	1.32
1733.3	0.89	331.77	1732.83	21.94	-15.27	-20.92	0.35
1828.6	1.63	330.87	1828.11	20.61	-13.44	-21.93	0.78
1924.2	1.76	323.26	1923.66	18.99	-11.07	-23.47	0.27
1971	1.84	310	1970.44	18.38	-10.01	-24.48	0.9
2050	1.44	311.46	2049.41	17.65	-8.54	-26.19	0.51
2146	0.07	153.74	2145.4	17.28	-7.79	-27.07	1.57
2241	0.07	242.42	2240.4	17.36	-7.87	-27.1	0.1
2336	0.22	128.03	2335.4	17.46	-8.01	-27	0.27
2431	0.1	74.88	2430.4	17.46	-8.1	-26.78	0.19
2527	0.18	341.45	2526.4	17.29	-7.94	-26.75	0.22
2622	0.22	2.04	2621.4	17.01	-7.61	-26.79	0.09
2717	0.15	334.3	2716.4	16.75	-7.32	-26.84	0.12
2812	0.18	14.5	2811.4	16.52	-7.06	-26.85	0.12
2907	0.21	31.11	2906.4	16.2	-6.77	-26.73	0.07
3002	0.3	224.14	3001.4	16.26	-6.8	-26.81	0.53
3040	0.87	227.9	3039.39	16.61	-7.06	-27.09	1.5
3068	1.37	224.98	3067.39	17.11	-7.44	-27.49	1.8
3098	2.07	225.09	3097.38	17.93	-8.08	-28.12	2.33
3192	4.08	224.13	3191.23	22.59	-11.68	-31.66	2.14
3287	5.73	222.19	3285.88	30.16	-17.62	-37.19	1.75
3383	6.09	219.39	3381.37	39.5	-25.1	-43.64	0.48
3478	6.45	219.96	3475.81	49.37	-33.09	-50.27	0.38
3574	8.23	223.39	3571.02	60.88	-42.22	-58.45	1.91
3669	9.87	225.43	3664.83	74.66	-52.87	-68.92	1.76
3763	11.56	228.36	3757.19	90.47	-64.78	-81.7	1.89
3857	13	231.97	3849.04	108.03	-77.56	-97.07	1.74
3952	16.27	226.63	3940.95	129.35	-93.28	-115.17	3.72
4046	19.17	223.26	4030.48	155.66	-113.57	-135.32	3.27
4141	22.51	222.89	4119.25	187.15	-138.26	-158.39	3.52
4235	24.53	222.57	4205.44	222.18	-165.82	-183.84	2.15
4330	24.43	223.67	4291.9	258.84	-194.55	-210.75	0.49
4424	24.95	222.63	4377.3	295.4	-223.2	-237.6	0.72
4518	25.18	222.49	4462.45	332.63	-252.53	-264.53	0.25
4612	25.47	221.48	4547.42	370.36	-282.42	-291.43	0.55
4707	24.99	219.28	4633.36	408.73	-313.26	-317.66	1.11
4802	25.37	217.51	4719.33	447.46	-344.93	-342.76	0.89
4896	25.54	215.39	4804.21	486.53	-377.43	-366.76	0.99
4991	25.52	215.35	4889.93	526.33	-410.81	-390.46	0.03

					N	E	
5086	25.45	215.22	4975.69	566.07	-444.18	-414.07	0.09
5181	26.49	214.51	5061.09	606.59	-478.32	-437.85	1.14
5276	26.65	212.26	5146.06	648.21	-513.79	-461.22	1.07
5370	26.69	211.8	5230.06	689.73	-549.56	-483.6	0.22
5465	26.37	211	5315.06	731.56	-585.78	-505.71	0.5
5560	27.13	214.06	5399.9	773.55	-621.81	-528.71	1.66
5655	27.34	215.63	5484.37	815.9	-657.49	-553.55	0.79
5750	27.46	213.8	5568.71	858.5	-693.42	-578.44	0.9
5844	27.37	212.56	5652.15	900.92	-729.64	-602.13	0.61
5907	27.29	211.6	5708.12	929.38	-754.15	-617.49	0.71
5970	27.36	209.62	5764.09	957.95	-779.03	-632.21	1.45
6033	27.2	209.69	5820.09	986.56	-804.13	-646.5	0.26
6096	27.28	208.86	5876.1	1015.14	-829.28	-660.6	0.62
6159	27.13	208.08	5932.13	1043.75	-854.6	-674.33	0.61
6224	26.73	207.42	5990.08	1073.03	-880.65	-688.04	0.77
6288	26.38	205.28	6047.33	1101.54	-906.28	-700.74	1.59
6351	27.68	202.79	6103.45	1130.14	-932.43	-712.38	2.74
6414	28.34	201.64	6159.07	1159.73	-959.82	-723.57	1.35
6477	29	201.56	6214.35	1189.95	-987.93	-734.69	1.05
6541	29.39	201.58	6270.22	1221.17	-1016.96	-746.17	0.61
6605	30.12	202.56	6325.78	1252.93	-1046.39	-758.11	1.37
6668	30.23	202.48	6380.24	1284.6	-1075.64	-770.23	0.19
6731	30.51	201.95	6434.6	1316.45	-1105.13	-782.28	0.62
6795	30.33	199.23	6489.79	1348.84	-1135.46	-793.67	2.17
6858	30.73	199.88	6544.05	1380.82	-1165.61	-804.38	0.82
6920	29.86	198.36	6597.59	1412.06	-1195.16	-814.63	1.87
6983	30.16	198.38	6652.14	1443.51	-1225.06	-824.56	0.48
7046	30.37	197.78	6706.56	1475.2	-1255.25	-834.42	0.58
7109	30.37	196.8	6760.91	1506.95	-1285.66	-843.88	0.79
7172	31.12	197.74	6815.06	1539.06	-1316.41	-853.45	1.41
7266	32.38	199.75	6894.99	1588.45	-1363.24	-869.36	1.75
7360	32.35	199.62	6974.39	1638.73	-1410.62	-886.31	0.08
7454	32.43	197.83	7053.76	1689.01	-1458.3	-902.47	1.02
7549	32.3	195.69	7134.01	1739.66	-1506.99	-917.13	1.21
7643	33.23	196.14	7213.05	1790.27	-1555.91	-931.08	1.02
7738	32.2	196.54	7292.98	1841.38	-1605.18	-945.53	1.11
7833	34.46	196.28	7372.35	1893.35	-1655.25	-960.27	2.38
7927	34.78	194.19	7449.71	1946.4	-1706.77	-974.3	1.31
8022	35.11	191.74	7527.59	2000.16	-1759.79	-986.5	1.52
8116	35.08	189.16	7604.5	2053.14	-1812.93	-996.3	1.58
8179	34.94	188.98	7656.1	2088.4	-1848.62	-1002	0.28
8242	35.1	189.23	7707.7	2123.68	-1884.32	-1007.72	0.34
8305	34.88	189.37	7759.31	2158.95	-1919.97	-1013.56	0.37
8368	36.08	189.02	7810.61	2194.64	-1956.07	-1019.4	1.93
8432	36.8	189.61	7862.1	2231.76	-1993.58	-1025.55	1.25
8496	36.84	189.39	7913.33	2269.24	-2031.41	-1031.88	0.22
8559	36.76	189.65	7963.78	2306.12	-2068.63	-1038.12	0.28
8622	36.6	190.47	8014.3	2342.96	-2105.68	-1044.7	0.82
8685	36.34	190.83	8064.96	2379.71	-2142.48	-1051.62	0.53
8748	36.25	188.5	8115.74	2416.17	-2179.24	-1057.88	2.19
8812	36.23	187.12	8167.36	2452.88	-2216.72	-1063.02	1.28
8875	36.08	186.54	8218.23	2488.79	-2253.63	-1067.44	0.59

8941	35.46	186.83	8271.78	2526.04	-2291.94	-1071.93	0.97
9004	33.01	187.13	8323.86	2560.31	-2327.12	-1076.23	3.9
9067	30.44	187.3	8377.44	2592.37	-2359.98	-1080.39	4.08
9131	30.05	188.37	8432.73	2623.65	-2391.92	-1084.78	1.04
9194	30.54	188.81	8487.13	2654.6	-2423.34	-1089.53	0.85
9257	30.15	188.03	8541.5	2685.57	-2454.83	-1094.19	0.88
9320	29.95	188.23	8596.03	2716.22	-2486.06	-1098.66	0.36
9383	29.71	189.04	8650.68	2746.74	-2517.04	-1103.36	0.74
9446	27.42	188.97	8706.01	2776.12	-2546.79	-1108.07	3.64
9509	25.27	188.55	8762.46	2803.36	-2574.42	-1112.34	3.43
9576	25	188.21	8823.12	2831.04	-2602.57	-1116.48	0.46
9681	22.83	182.11	8919.11	2871.8	-2644.9	-1120.4	3.13
9733	21.95	184.12	8967.19	2890.57	-2664.68	-1121.47	2.24
9828	22.7	184.38	9055.07	2924.98	-2700.66	-1124.15	0.8
9882	22.51	185.23	9104.92	2944.83	-2721.35	-1125.89	0.7
9902	22.59	184.68	9123.39	2952.17	-2728.99	-1126.55	1.13
9945	22.96	183.55	9163.04	2968.03	-2745.59	-1127.74	1.33
9979	21.71	183.06	9194.49	2980.29	-2758.49	-1128.49	3.72
10007	22.08	182.47	9220.47	2990.16	-2768.92	-1128.99	1.54
10070	22.02	181.98	9278.86	3012.45	-2792.55	-1129.91	0.31
10125	22.3	181.03	9329.8	3031.91	-2813.29	-1130.45	0.83
10197	22.61	179.72	9396.34	3057.51	-2840.79	-1130.63	0.82
10240	23.2	179.43	9435.95	3073.01	-2857.52	-1130.51	1.4
10260	23.18	180.23	9454.34	3080.31	-2865.4	-1130.48	1.58
10319	23.23	177.93	9508.56	3101.76	-2888.64	-1130.11	1.54
10343	23.14	178.59	9530.63	3110.42	-2898.08	-1129.82	1.15
10448	22.83	177.26	9627.29	3147.92	-2939.05	-1128.34	0.58
10543	21.52	176.55	9715.26	3180.46	-2974.86	-1126.41	1.41
10638	19.5	175.4	9804.24	3210.43	-3008.06	-1124.09	2.17
10732	17.8	171.65	9893.3	3236.92	-3037.92	-1120.75	2.21
10826	14.68	170	9983.54	3259.47	-3063.87	-1116.59	3.35
10921	10.83	167.17	10076.18	3277.06	-3084.43	-1112.52	4.1
11015	8.13	161.19	10168.89	3289.38	-3099.34	-1108.41	3.05
11109	5.93	150.82	10262.18	3297.49	-3109.87	-1103.9	2.69
11205	4.92	136.26	10357.75	3302.32	-3117.17	-1098.64	1.77
11300	3.92	127.83	10452.47	3304.91	-3122.11	-1093.25	1.25
11395	2.78	121.53	10547.31	3306.2	-3125.31	-1088.73	1.26
11490	3.13	120.96	10642.18	3307	-3127.85	-1084.54	0.37
11584	4.01	122.41	10736	3308.02	-3130.93	-1079.56	0.94
11616	3.59	124.35	10767.93	3308.44	-3132.09	-1077.79	1.37
11680	3.99	123.37	10831.78	3309.33	-3134.45	-1074.28	0.63
11743	3.38	125.73	10894.65	3310.22	-3136.74	-1070.94	1
11806	1.93	124.48	10957.59	3310.9	-3138.42	-1068.56	2.3
11869	0.45	117.98	11020.57	3311.16	-3139.14	-1067.46	2.36
11933	0.48	121.49	11084.57	3311.23	-3139.4	-1067.01	0.06
11996	0.14	154.98	11147.57	3311.33	-3139.6	-1066.76	0.59
12059	0.44	162.73	11210.57	3311.57	-3139.91	-1066.65	0.48
12122	0.31	343.1	11273.57	3311.62	-3139.97	-1066.63	1.19
12185	0.33	183.23	11336.57	3311.66	-3139.99	-1066.69	1
12248	0.15	232.77	11399.56	3311.9	-3140.22	-1066.76	0.41
12358	0.77	150.31	11509.56	3312.49	-3140.95	-1066.51	0.7
12470	5.58	147.17	11621.36	3316.11	-3146.18	-1063.19	4.3

					N	E	
12562	8.06	144.65	11712.7	3322.21	-3155.2	-1057.03	2.71
12625	10.49	142.9	11774.87	3327.57	-3163.38	-1051.01	3.88
12744	11.24	141.53	11891.74	3338.93	-3181.1	-1037.26	0.67
12808	7.78	143.39	11954.85	3344.3	-3189.47	-1030.8	5.43
12872	5.39	139.27	12018.42	3347.96	-3195.22	-1026.25	3.8
12933	2.53	116.68	12079.27	3349.39	-3198	-1023.18	5.25
12997	2.48	144.22	12143.21	3350.26	-3199.76	-1021.11	1.86
13059	1.9	157.4	12205.17	3351.71	-3201.79	-1019.93	1.23
13122	1.69	164.31	12268.14	3353.2	-3203.65	-1019.28	0.48
13186	1.14	139.62	12332.12	3354.24	-3205.05	-1018.61	1.26
13249	1.02	147.69	12395.11	3354.86	-3206	-1017.9	0.31
13311	1.14	115.87	12457.1	3355.23	-3206.73	-1017.05	0.97
13374	1.09	139.81	12520.08	3355.56	-3207.46	-1016.1	0.74
13438	1.2	137.85	12584.07	3356.14	-3208.43	-1015.26	0.18
13502	0.33	137.95	12648.07	3356.52	-3209.06	-1014.69	1.36
13565	0.86	192.24	12711.06	3357.06	-3209.66	-1014.66	1.14
13629	1.3	249.89	12775.05	3358.02	-3210.37	-1015.45	1.74
13692	4.15	270.77	12837.98	3359.31	-3210.59	-1018.4	4.72
13754	4.73	272.37	12899.79	3360.97	-3210.45	-1023.2	0.96
13810	3.62	294.26	12955.64	3361.66	-3209.63	-1027.12	3.43
13873	2.65	313.77	13018.55	3361.03	-3207.81	-1029.98	2.27
13936	0.92	85.46	13081.53	3360.26	-3206.76	-1030.53	5.29
13999	1.65	96.62	13144.51	3359.79	-3206.82	-1029.12	1.22
14060	1.05	119.12	13205.5	3359.64	-3207.2	-1027.76	1.29
14126	0.86	126.78	13271.49	3359.84	-3207.79	-1026.84	0.35
14170	0.6	114.75	13315.48	3359.94	-3208.08	-1026.36	0.68
14189	0.58	78.35	13334.48	3359.89	-3208.1	-1026.18	1.94
14255	1.32	74.11	13400.47	3359.24	-3207.83	-1025.12	1.13
14507	6.69	108.5	13651.79	3356.63	-3211.7	-1008.4	2.24
14536	8.13	105.36	13680.54	3356.31	-3212.77	-1004.82	5.16
14568	9.71	104.07	13712.16	3355.69	-3214.03	-1000.02	4.98
14598	11.16	102.35	13741.66	3354.88	-3215.27	-994.73	4.94

# TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude
WOLVERINE STATE		6347	-1088	-776	1515730	6728785	38°47'28.6"	111°56'14.1"
WOLVERINE STATE		13004	-2953.74	-1179.65	1515318	6726921	38°47'10.2"	111°56'19.1"

WELLPATH COMPOSITION Ref Wellbore: WOLVERINE STATE 20-5 AWB Ref Wellpath: WOLVERINE STATE 20-5 AWB

Log Name/ Start MD End MD Pos Unc Model  
[ft] [ft]

Gyrodata [	0	1971	Gyrodata relative depth - Drop gyro or Multi-shot					
12 1/4" Hol	1971	10343	NaviTrak (Standard)					
8 1/2" Hole	10343	12625	NaviTrak (Standard)					
6 3/4" Hole	12625	14598	NaviTrak (Standard)					

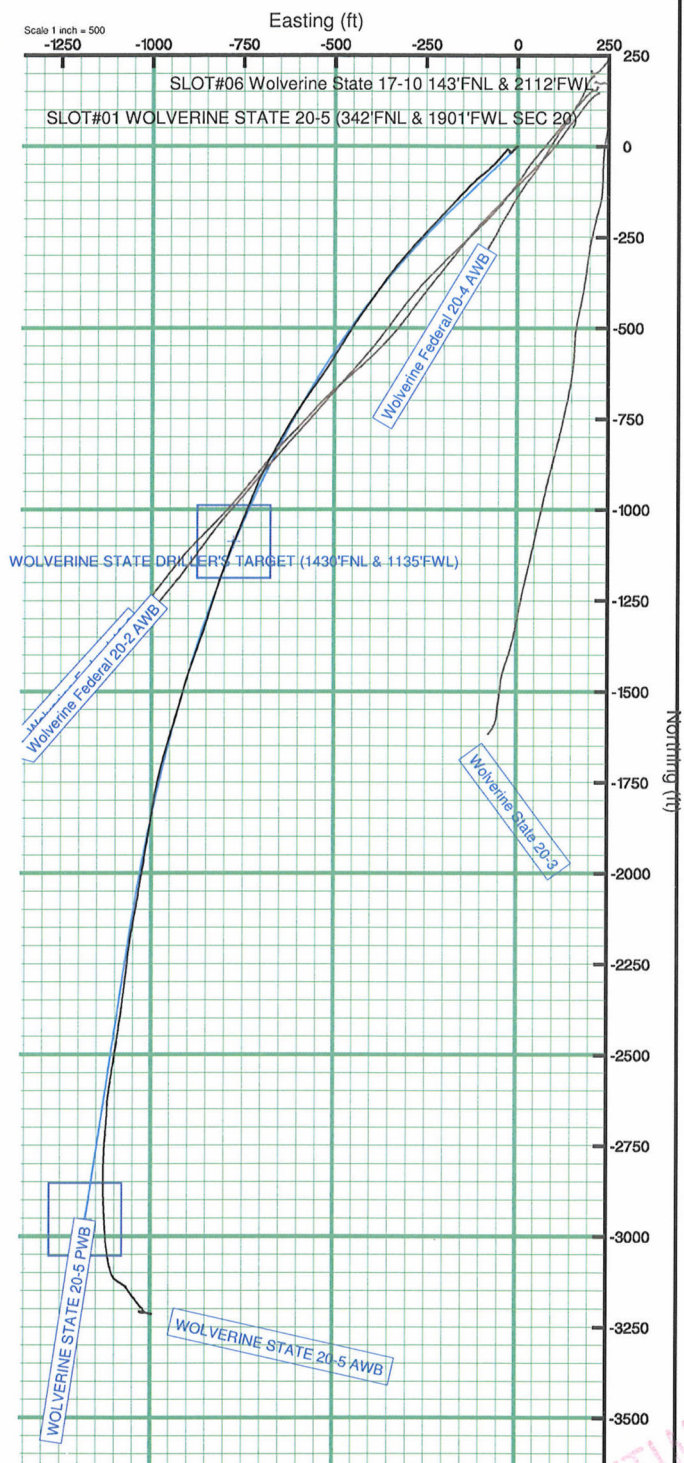
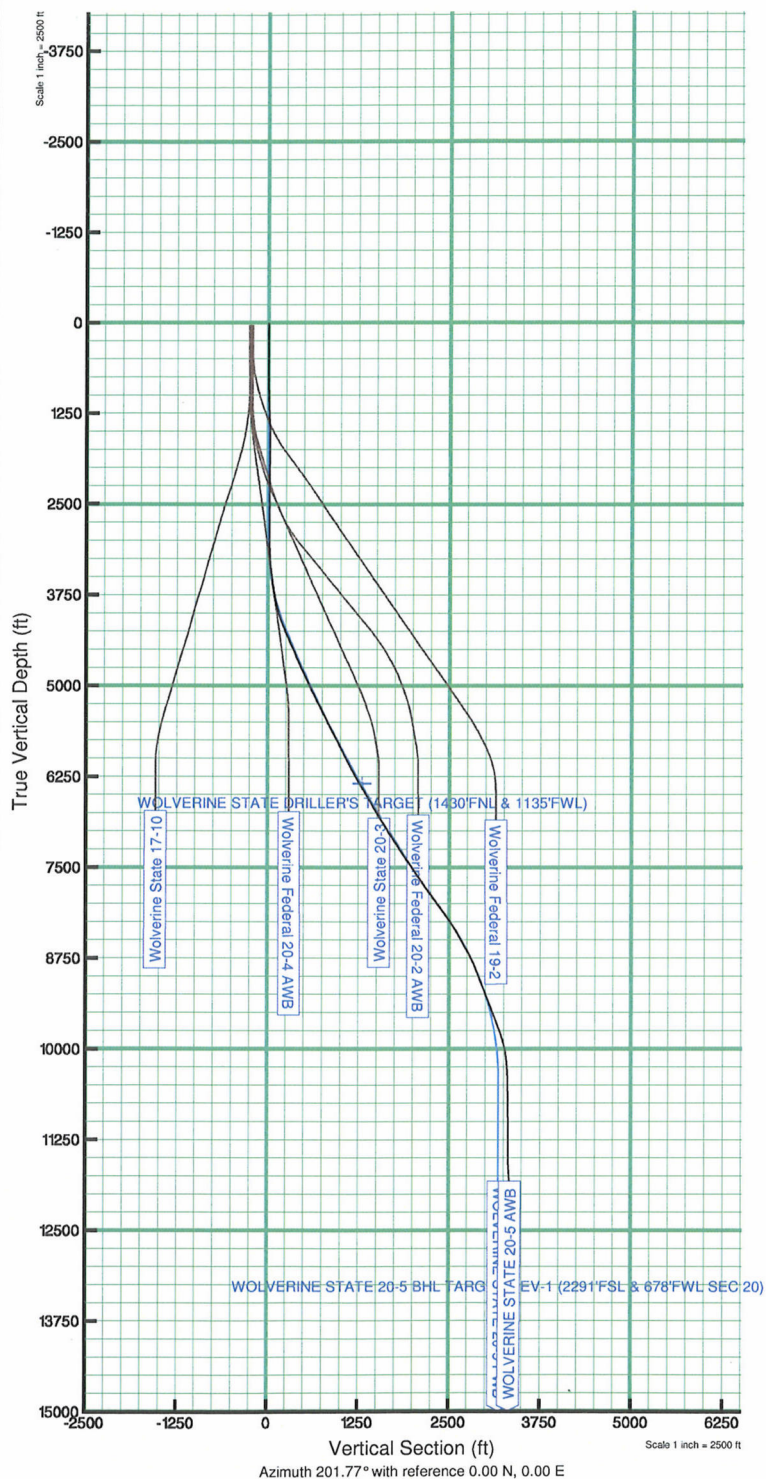


# WOLVERINE GAS & OIL COMPANY

Location: UTAH\_1 Slot: SLOT#01 WOLVERINE STATE 20-5 (342°FNL & 1901°FNL SEC 20)  
 Field: SEVIER COUNTY Well: WOLVERINE STATE 20-5  
 Facility: SEC.20-T23S-R1W Wellbore: WOLVERINE STATE 20-5 AWB



Plot reference wellbore WOLVERINE STATE 20-5 AWP	Plot System: NAD83 / Lambert State Plane Zone 12N
True vertical depths are referenced to PATTERSON 204 (M)	North/South: True North
Measured depths are referenced to PATTERSON 204 (M)	Scale: True distance
PATTERSON 204 (M) to Mean Sea Level: 5387 feet	Depth are in feet
Mean Sea Level to MSL (M) (Slot: WOLVERINE STATE 20-5 (342°FNL & 1901°FNL SEC 20): 0 feet	Created by: wendy on 12/07/2011
Coordinates are in feet referenced to Epi	



CONFIDENTIAL

# ACTUAL WELLPATH REPORT (CSV version)

Prepared by Baker Hughes

Software System: WellArchitect@3.0.0

## REFERENCE WELLPATH IDENTIFICATION

Operator WOLVERINE GAS & OIL COMPANY  
Area UTAH\_1  
Field SEVIER COUNTY  
Facility SEC.20-T23S-R1W  
Slot SLOT#01 WOLVERINE STATE 20-5 (342'FNL & 1901'FWL SEC 20)  
Well WOLVERINE STATE 20-5  
Wellbore WOLVERINE STATE 20-5 AWB  
Wellpath WOLVERINE STATE 20-5 AWP  
Sidetrack (none)

## REPORT SETUP INFORMATION

Projection : NAD83 / Lambert Utah SP, Central Zone (4302), US feet

North Refe TRUE

Scale 1.00006

Convergen 0.28° West

Software S WellArchitect@

User Wendfex

Report Ger 12/07/2011 at 16:50

DataBase/ WellArchitectDB/ev12.xml

WELLPAT	Local North [ft]	Local East [ft]	Grid East [ft]	Grid North [ft]	Latitude	Longitude
Slot Locati	-208.06	-202.36	1516512	6729869	38°47'39.4"	111°56'04.872"W
Facility Ref			1516715	6730076	38°47'41.4"	111°56'02.316"W
Field Refer			1537058	6764184	38°53'19.4"	111°51'47.146"W

## WELLPATH DATUM

Calculation Minimum curvature

Horizontal Slot

Vertical Re PATTERSON 304 (RT)

MD Refere PATTERSON 304 (RT)

Field Vertic Mean Sea Level

PATTERSON 5897.00ft

PATTERSON 5897.00ft

PATTERSON 5897.00ft

Section Ori 0.00ft

Section Ori 0.00ft

Section Azi 201.77°

## WELLPATH DATA Wellbore: WOLVERINE STATE 20-5 AWB Wellpath: WOLVERINE STATE

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	DLS
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[°/100ft]
0	0	70.75	0	0	0	0	0
117.4	0.35	70.75	117.4	-0.24	0.12	0.34	0.3
213.8	0.29	105.49	213.8	-0.46	0.15	0.85	0.21
306.9	0.28	151.82	306.9	-0.33	-0.11	1.19	0.24

402.1	0.29	183.52	402.1	0.04	-0.56	1.28	0.16
495	0.33	305.08	495	0.21	-0.64	1.05	0.58
591.4	1.02	305.31	591.39	-0.06	0.02	0.12	0.72
685.6	0.85	291.73	685.58	-0.26	0.76	-1.21	0.3
780.8	0.63	239.8	780.77	0.16	0.76	-2.32	0.71
876.3	0.79	223.67	876.26	1.18	0.02	-3.23	0.27
971.6	1.2	218.79	971.55	2.75	-1.24	-4.31	0.44
1066.2	1.79	216.49	1066.11	5.12	-3.2	-5.81	0.63
1160.9	2.14	220.42	1160.76	8.23	-5.73	-7.83	0.4
1256	2.22	220.97	1255.79	11.65	-8.47	-10.19	0.09
1351.2	2.74	226.02	1350.9	15.47	-11.45	-13.04	0.59
1447	2.38	227.54	1446.6	19.34	-14.38	-16.15	0.38
1542.8	1.33	242.56	1542.35	21.98	-16.23	-18.61	1.2
1637.9	0.77	309.77	1637.44	22.62	-16.33	-20.08	1.32
1733.3	0.89	331.77	1732.83	21.94	-15.27	-20.92	0.35
1828.6	1.63	330.87	1828.11	20.61	-13.44	-21.93	0.78
1924.2	1.76	323.26	1923.66	18.99	-11.07	-23.47	0.27
1971	1.84	310	1970.44	18.38	-10.01	-24.48	0.9
2050	1.44	311.46	2049.41	17.65	-8.54	-26.19	0.51
2146	0.07	153.74	2145.4	17.28	-7.79	-27.07	1.57
2241	0.07	242.42	2240.4	17.36	-7.87	-27.1	0.1
2336	0.22	128.03	2335.4	17.46	-8.01	-27	0.27
2431	0.1	74.88	2430.4	17.46	-8.1	-26.78	0.19
2527	0.18	341.45	2526.4	17.29	-7.94	-26.75	0.22
2622	0.22	2.04	2621.4	17.01	-7.61	-26.79	0.09
2717	0.15	334.3	2716.4	16.75	-7.32	-26.84	0.12
2812	0.18	14.5	2811.4	16.52	-7.06	-26.85	0.12
2907	0.21	31.11	2906.4	16.2	-6.77	-26.73	0.07
3002	0.3	224.14	3001.4	16.26	-6.8	-26.81	0.53
3040	0.87	227.9	3039.39	16.61	-7.06	-27.09	1.5
3068	1.37	224.98	3067.39	17.11	-7.44	-27.49	1.8
3098	2.07	225.09	3097.38	17.93	-8.08	-28.12	2.33
3192	4.08	224.13	3191.23	22.59	-11.68	-31.66	2.14
3287	5.73	222.19	3285.88	30.16	-17.62	-37.19	1.75
3383	6.09	219.39	3381.37	39.5	-25.1	-43.64	0.48
3478	6.45	219.96	3475.81	49.37	-33.09	-50.27	0.38
3574	8.23	223.39	3571.02	60.88	-42.22	-58.45	1.91
3669	9.87	225.43	3664.83	74.66	-52.87	-68.92	1.76
3763	11.56	228.36	3757.19	90.47	-64.78	-81.7	1.89
3857	13	231.97	3849.04	108.03	-77.56	-97.07	1.74
3952	16.27	226.63	3940.95	129.35	-93.28	-115.17	3.72
4046	19.17	223.26	4030.48	155.66	-113.57	-135.32	3.27
4141	22.51	222.89	4119.25	187.15	-138.26	-158.39	3.52
4235	24.53	222.57	4205.44	222.18	-165.82	-183.84	2.15
4330	24.43	223.67	4291.9	258.84	-194.55	-210.75	0.49
4424	24.95	222.63	4377.3	295.4	-223.2	-237.6	0.72
4518	25.18	222.49	4462.45	332.63	-252.53	-264.53	0.25
4612	25.47	221.48	4547.42	370.36	-282.42	-291.43	0.55
4707	24.99	219.28	4633.36	408.73	-313.26	-317.66	1.11
4802	25.37	217.51	4719.33	447.46	-344.93	-342.76	0.89
4896	25.54	215.39	4804.21	486.53	-377.43	-366.76	0.99
4991	25.52	215.35	4889.93	526.33	-410.81	-390.46	0.03

5086	25.45	215.22	4975.69	566.07	-444.18	-414.07	0.09
5181	26.49	214.51	5061.09	606.59	-478.32	-437.85	1.14
5276	26.65	212.26	5146.06	648.21	-513.79	-461.22	1.07
5370	26.69	211.8	5230.06	689.73	-549.56	-483.6	0.22
5465	26.37	211	5315.06	731.56	-585.78	-505.71	0.5
5560	27.13	214.06	5399.9	773.55	-621.81	-528.71	1.66
5655	27.34	215.63	5484.37	815.9	-657.49	-553.55	0.79
5750	27.46	213.8	5568.71	858.5	-693.42	-578.44	0.9
5844	27.37	212.56	5652.15	900.92	-729.64	-602.13	0.61
5907	27.29	211.6	5708.12	929.38	-754.15	-617.49	0.71
5970	27.36	209.62	5764.09	957.95	-779.03	-632.21	1.45
6033	27.2	209.69	5820.09	986.56	-804.13	-646.5	0.26
6096	27.28	208.86	5876.1	1015.14	-829.28	-660.6	0.62
6159	27.13	208.08	5932.13	1043.75	-854.6	-674.33	0.61
6224	26.73	207.42	5990.08	1073.03	-880.65	-688.04	0.77
6288	26.38	205.28	6047.33	1101.54	-906.28	-700.74	1.59
6351	27.68	202.79	6103.45	1130.14	-932.43	-712.38	2.74
6414	28.34	201.64	6159.07	1159.73	-959.82	-723.57	1.35
6477	29	201.56	6214.35	1189.95	-987.93	-734.69	1.05
6541	29.39	201.58	6270.22	1221.17	-1016.96	-746.17	0.61
6605	30.12	202.56	6325.78	1252.93	-1046.39	-758.11	1.37
6668	30.23	202.48	6380.24	1284.6	-1075.64	-770.23	0.19
6731	30.51	201.95	6434.6	1316.45	-1105.13	-782.28	0.62
6795	30.33	199.23	6489.79	1348.84	-1135.46	-793.67	2.17
6858	30.73	199.88	6544.05	1380.82	-1165.61	-804.38	0.82
6920	29.86	198.36	6597.59	1412.06	-1195.16	-814.63	1.87
6983	30.16	198.38	6652.14	1443.51	-1225.06	-824.56	0.48
7046	30.37	197.78	6706.56	1475.2	-1255.25	-834.42	0.58
7109	30.37	196.8	6760.91	1506.95	-1285.66	-843.88	0.79
7172	31.12	197.74	6815.06	1539.06	-1316.41	-853.45	1.41
7266	32.38	199.75	6894.99	1588.45	-1363.24	-869.36	1.75
7360	32.35	199.62	6974.39	1638.73	-1410.62	-886.31	0.08
7454	32.43	197.83	7053.76	1689.01	-1458.3	-902.47	1.02
7549	32.3	195.69	7134.01	1739.66	-1506.99	-917.13	1.21
7643	33.23	196.14	7213.05	1790.27	-1555.91	-931.08	1.02
7738	32.2	196.54	7292.98	1841.38	-1605.18	-945.53	1.11
7833	34.46	196.28	7372.35	1893.35	-1655.25	-960.27	2.38
7927	34.78	194.19	7449.71	1946.4	-1706.77	-974.3	1.31
8022	35.11	191.74	7527.59	2000.16	-1759.79	-986.5	1.52
8116	35.08	189.16	7604.5	2053.14	-1812.93	-996.3	1.58
8179	34.94	188.98	7656.1	2088.4	-1848.62	-1002	0.28
8242	35.1	189.23	7707.7	2123.68	-1884.32	-1007.72	0.34
8305	34.88	189.37	7759.31	2158.95	-1919.97	-1013.56	0.37
8368	36.08	189.02	7810.61	2194.64	-1956.07	-1019.4	1.93
8432	36.8	189.61	7862.1	2231.76	-1993.58	-1025.55	1.25
8496	36.84	189.39	7913.33	2269.24	-2031.41	-1031.88	0.22
8559	36.76	189.65	7963.78	2306.12	-2068.63	-1038.12	0.28
8622	36.6	190.47	8014.3	2342.96	-2105.68	-1044.7	0.82
8685	36.34	190.83	8064.96	2379.71	-2142.48	-1051.62	0.53
8748	36.25	188.5	8115.74	2416.17	-2179.24	-1057.88	2.19
8812	36.23	187.12	8167.36	2452.88	-2216.72	-1063.02	1.28
8875	36.08	186.54	8218.23	2488.79	-2253.63	-1067.44	0.59



8941	35.46	186.83	8271.78	2526.04	-2291.94	-1071.93	0.97
9004	33.01	187.13	8323.86	2560.31	-2327.12	-1076.23	3.9
9067	30.44	187.3	8377.44	2592.37	-2359.98	-1080.39	4.08
9131	30.05	188.37	8432.73	2623.65	-2391.92	-1084.78	1.04
9194	30.54	188.81	8487.13	2654.6	-2423.34	-1089.53	0.85
9257	30.15	188.03	8541.5	2685.57	-2454.83	-1094.19	0.88
9320	29.95	188.23	8596.03	2716.22	-2486.06	-1098.66	0.36
9383	29.71	189.04	8650.68	2746.74	-2517.04	-1103.36	0.74
9446	27.42	188.97	8706.01	2776.12	-2546.79	-1108.07	3.64
9509	25.27	188.55	8762.46	2803.36	-2574.42	-1112.34	3.43
9576	25	188.21	8823.12	2831.04	-2602.57	-1116.48	0.46
9681	22.83	182.11	8919.11	2871.8	-2644.9	-1120.4	3.13
9733	21.95	184.12	8967.19	2890.57	-2664.68	-1121.47	2.24
9828	22.7	184.38	9055.07	2924.98	-2700.66	-1124.15	0.8
9882	22.51	185.23	9104.92	2944.83	-2721.35	-1125.89	0.7
9902	22.59	184.68	9123.39	2952.17	-2728.99	-1126.55	1.13
9945	22.96	183.55	9163.04	2968.03	-2745.59	-1127.74	1.33
9979	21.71	183.06	9194.49	2980.29	-2758.49	-1128.49	3.72
10007	22.08	182.47	9220.47	2990.16	-2768.92	-1128.99	1.54
10070	22.02	181.98	9278.86	3012.45	-2792.55	-1129.91	0.31
10125	22.3	181.03	9329.8	3031.91	-2813.29	-1130.45	0.83
10197	22.61	179.72	9396.34	3057.51	-2840.79	-1130.63	0.82
10240	23.2	179.43	9435.95	3073.01	-2857.52	-1130.51	1.4
10260	23.18	180.23	9454.34	3080.31	-2865.4	-1130.48	1.58
10319	23.23	177.93	9508.56	3101.76	-2888.64	-1130.11	1.54
10343	23.14	178.59	9530.63	3110.42	-2898.08	-1129.82	1.15
10448	22.83	177.26	9627.29	3147.92	-2939.05	-1128.34	0.58
10543	21.52	176.55	9715.26	3180.46	-2974.86	-1126.41	1.41
10638	19.5	175.4	9804.24	3210.43	-3008.06	-1124.09	2.17
10732	17.8	171.65	9893.3	3236.92	-3037.92	-1120.75	2.21
10826	14.68	170	9983.54	3259.47	-3063.87	-1116.59	3.35
10921	10.83	167.17	10076.18	3277.06	-3084.43	-1112.52	4.1
11015	8.13	161.19	10168.89	3289.38	-3099.34	-1108.41	3.05
11109	5.93	150.82	10262.18	3297.49	-3109.87	-1103.9	2.69
11205	4.92	136.26	10357.75	3302.32	-3117.17	-1098.64	1.77
11300	3.92	127.83	10452.47	3304.91	-3122.11	-1093.25	1.25
11395	2.78	121.53	10547.31	3306.2	-3125.31	-1088.73	1.26
11490	3.13	120.96	10642.18	3307	-3127.85	-1084.54	0.37
11584	4.01	122.41	10736	3308.02	-3130.93	-1079.56	0.94
11616	3.59	124.35	10767.93	3308.44	-3132.09	-1077.79	1.37
11680	3.99	123.37	10831.78	3309.33	-3134.45	-1074.28	0.63
11743	3.38	125.73	10894.65	3310.22	-3136.74	-1070.94	1
11806	1.93	124.48	10957.59	3310.9	-3138.42	-1068.56	2.3
11869	0.45	117.98	11020.57	3311.16	-3139.14	-1067.46	2.36
11933	0.48	121.49	11084.57	3311.23	-3139.4	-1067.01	0.06
11996	0.14	154.98	11147.57	3311.33	-3139.6	-1066.76	0.59
12059	0.44	162.73	11210.57	3311.57	-3139.91	-1066.65	0.48
12122	0.31	343.1	11273.57	3311.62	-3139.97	-1066.63	1.19
12185	0.33	183.23	11336.57	3311.66	-3139.99	-1066.69	1
12248	0.15	232.77	11399.56	3311.9	-3140.22	-1066.76	0.41
12358	0.77	150.31	11509.56	3312.49	-3140.95	-1066.51	0.7
12470	5.58	147.17	11621.36	3316.11	-3146.18	-1063.19	4.3

12562	8.06	144.65	11712.7	3322.21	-3155.2	-1057.03	2.71
12625	10.49	142.9	11774.87	3327.57	-3163.38	-1051.01	3.88
12744	11.24	141.53	11891.74	3338.93	-3181.1	-1037.26	0.67
12808	7.78	143.39	11954.85	3344.3	-3189.47	-1030.8	5.43
12872	5.39	139.27	12018.42	3347.96	-3195.22	-1026.25	3.8
12933	2.53	116.68	12079.27	3349.39	-3198	-1023.18	5.25
12997	2.48	144.22	12143.21	3350.26	-3199.76	-1021.11	1.86
13059	1.9	157.4	12205.17	3351.71	-3201.79	-1019.93	1.23
13122	1.69	164.31	12268.14	3353.2	-3203.65	-1019.28	0.48
13186	1.14	139.62	12332.12	3354.24	-3205.05	-1018.61	1.26
13249	1.02	147.69	12395.11	3354.86	-3206	-1017.9	0.31
13311	1.14	115.87	12457.1	3355.23	-3206.73	-1017.05	0.97
13374	1.09	139.81	12520.08	3355.56	-3207.46	-1016.1	0.74
13438	1.2	137.85	12584.07	3356.14	-3208.43	-1015.26	0.18
13502	0.33	137.95	12648.07	3356.52	-3209.06	-1014.69	1.36
13565	0.86	192.24	12711.06	3357.06	-3209.66	-1014.66	1.14
13629	1.3	249.89	12775.05	3358.02	-3210.37	-1015.45	1.74
13692	4.15	270.77	12837.98	3359.31	-3210.59	-1018.4	4.72
13754	4.73	272.37	12899.79	3360.97	-3210.45	-1023.2	0.96
13810	3.62	294.26	12955.64	3361.66	-3209.63	-1027.12	3.43
13873	2.65	313.77	13018.55	3361.03	-3207.81	-1029.98	2.27
13936	0.92	85.46	13081.53	3360.26	-3206.76	-1030.53	5.29
13999	1.65	96.62	13144.51	3359.79	-3206.82	-1029.12	1.22
14060	1.05	119.12	13205.5	3359.64	-3207.2	-1027.76	1.29
14126	0.86	126.78	13271.49	3359.84	-3207.79	-1026.84	0.35
14170	0.6	114.75	13315.48	3359.94	-3208.08	-1026.36	0.68
14189	0.58	78.35	13334.48	3359.89	-3208.1	-1026.18	1.94
14255	1.32	74.11	13400.47	3359.24	-3207.83	-1025.12	1.13
14507	6.69	108.5	13651.79	3356.63	-3211.7	-1008.4	2.24
14536	8.13	105.36	13680.54	3356.31	-3212.77	-1004.82	5.16
14568	9.71	104.07	13712.16	3355.69	-3214.03	-1000.02	4.98
14598	11.16	102.35	13741.66	3354.88	-3215.27	-994.73	4.94

## T A R G E T S

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude
WOLVERINE STATE		6347	-1088	-776	1515730	6728785	38°47'28.6"	111°56'14.1"
WOLVERINE STATE		13004	-2953.74	-1179.65	1515318	6726921	38°47'10.2"	111°56'19.1"

## WELLPATH COMPOSITION Ref Wellbore: WOLVERINE STATE 20-5 AWB Ref Wellpath: WOLVERINE STATE 20-5 AWB

Log Name/	Start MD [ft]	End MD [ft]	Pos Unc	Model
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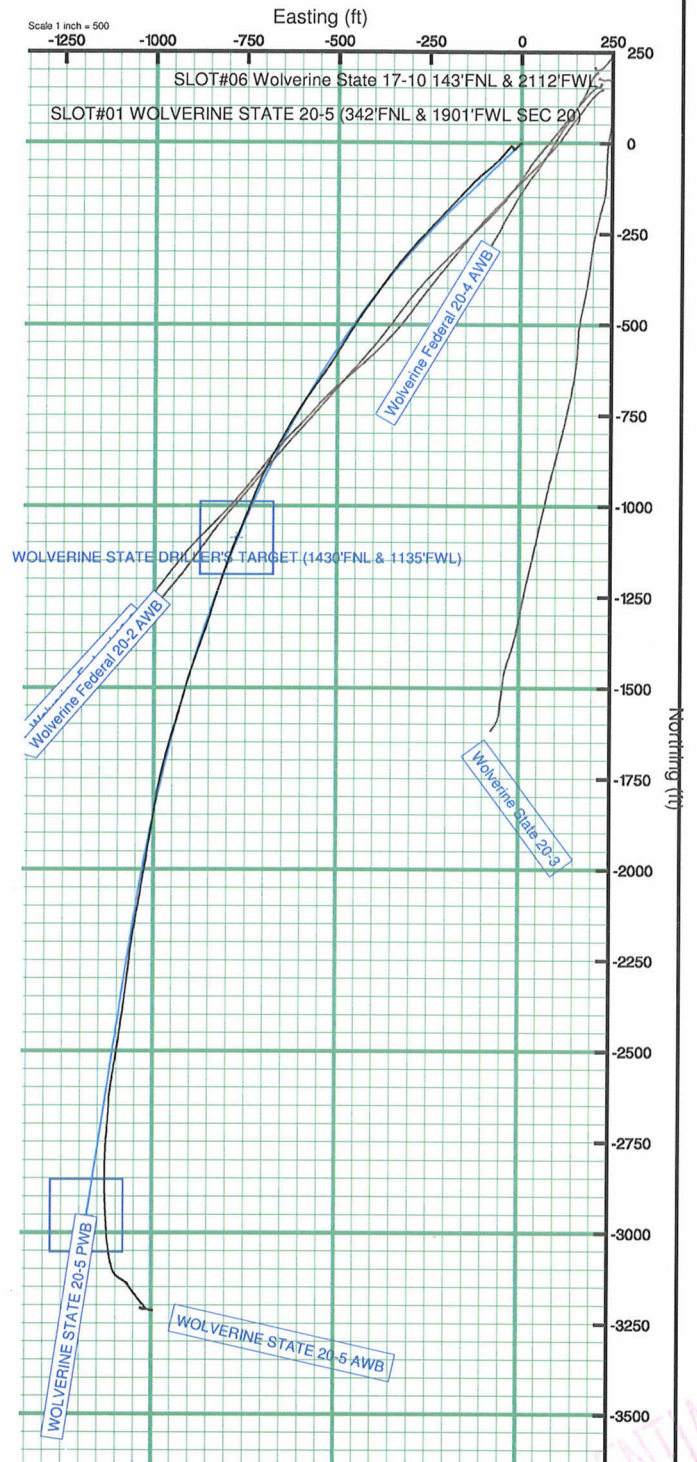
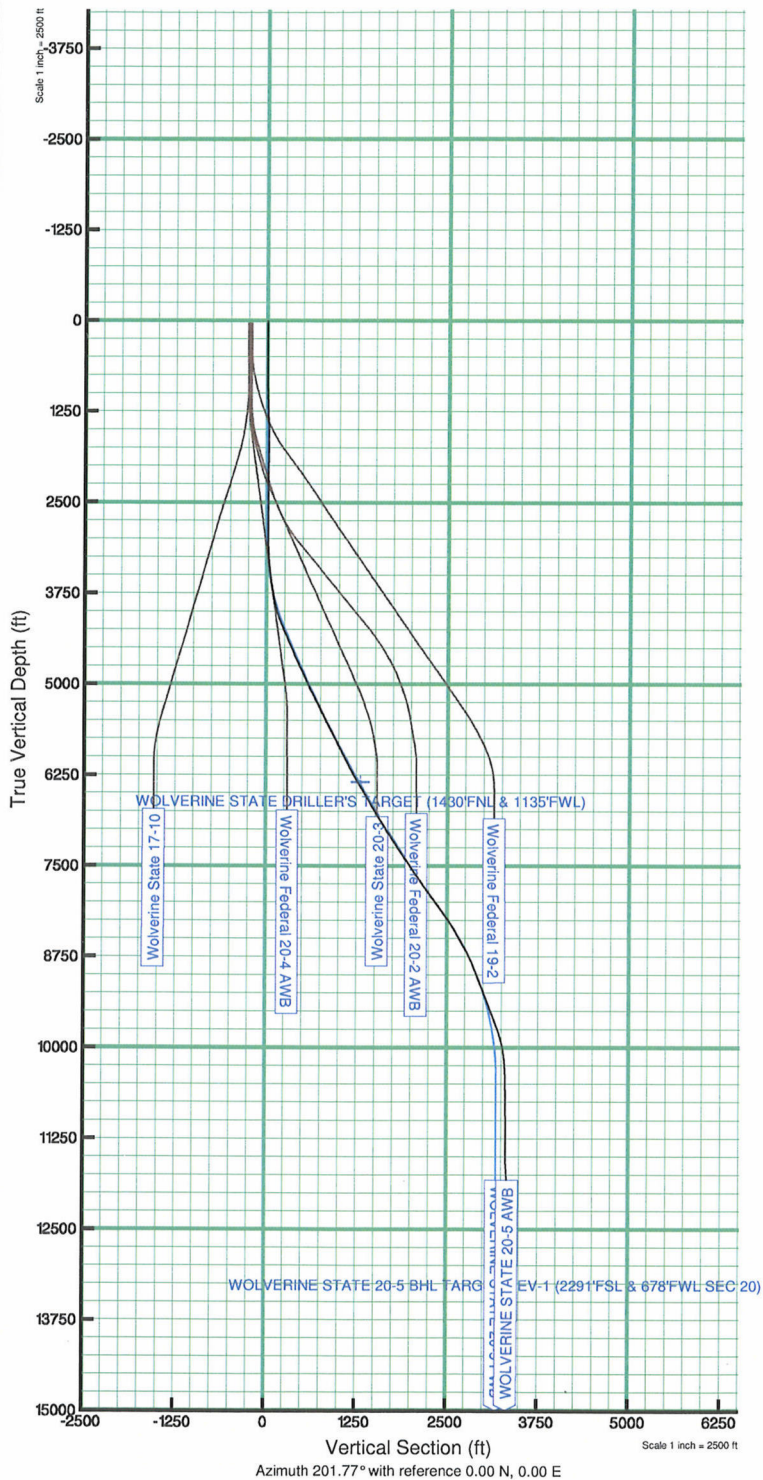
Gyrodata C	0	1971	Gyrodata relative depth - Drop gyro or Multi-shot	
12 1/4" Hol	1971	10343	NaviTrak (Standard)	
8 1/2" Hole	10343	12625	NaviTrak (Standard)	
6 3/4" Hole	12625	14598	NaviTrak (Standard)	

# WOLVERINE GAS & OIL COMPANY

Location: UTAH\_1 Slot: SLOT#01 WOLVERINE STATE 20-5 (342'FNL & 1901'FWL SEC 20)  
 Field: SEVIER COUNTY Well: WOLVERINE STATE 20-5  
 Facility: SEC.20-23S-R1W Wellbore: WOLVERINE STATE 20-5 AWB



The reference wellbore is WOLVERINE STATE 20-5 AWB	
True vertical depths are referenced to PATTERSON 304 (RT)	Grid System: NAD83 / Lambert Utah SP, Central Zone (4302), US feet
Measured depths are referenced to PATTERSON 304 (RT)	North Reference: True north
PATTERSON 304 (RT) to Mean Sea Level: 6897 feet	Scale: True distance
Mean Sea Level to Mulline (A: Slot: SLO#01) WOLVERINE STATE 20-5 (342'FNL & 1901'FWL SEC 20): 0 feet	Depth: as in text
Coordinates are in feet referenced to Slot	Created by: wsh/ra on 12/27/2011



CONFIDENTIAL

# ACTUAL WELLPATH REPORT (CSV version)

Prepared by Baker Hughes

Software System: WellArchitect®3.0.0

## REFERENCE WELLPATH IDENTIFICATION

Operator WOLVERINE GAS & OIL COMPANY  
 Area UTAH\_1  
 Field SEVIER COUNTY  
 Facility SEC.20-T23S-R1W  
 Slot SLOT#01 WOLVERINE STATE 20-5 (342'FNL & 1901'FWL SEC 20)  
 Well WOLVERINE STATE 20-5  
 Wellbore WOLVERINE STATE 20-5 AWB  
 Wellpath WOLVERINE STATE 20-5 AWP  
 Sidetrack (none)

## REPORT SETUP INFORMATION

Projection : NAD83 / Lambert Utah SP, Central Zone (4302), US feet  
 North Refe TRUE  
 Scale 1.00006  
 Convergen 0.28° West  
 Software S WellArchitect®  
 User Wendfex  
 Report Ger 12/07/2011 at 16:50  
 DataBase/' WellArchitectDB/ev12.xml

WELLPAT	Local North	Local East	Grid East	Grid North	Latitude	Longitude
	[ft]	[ft]	[ft]	[ft]		
Slot Locati	-208.06	-202.36	1516512	6729869	38°47'39.4"	111°56'04.872"W
Facility Ref			1516715	6730076	38°47'41.4"	111°56'02.316"W
Field Refer			1537058	6764184	38°53'19.4"	111°51'47.146"W

## WELLPATH DATUM

Calculation Minimum curvature  
 Horizontal Slot  
 Vertical Re PATTERSON 304 (RT)  
 MD Refere PATTERSON 304 (RT)  
 Field Vertic Mean Sea Level  
 PATTERS(5897.00ft  
 PATTERS(5897.00ft  
 PATTERS(5897.00ft  
 Section Ori 0.00ft  
 Section Ori 0.00ft  
 Section Azi 201.77°

## WELLPATH DATA Wellbore: WOLVERINE STATE 20-5 AWB Wellpath: WOLVERINE STATE

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	DLS
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[°/100ft]
0	0	70.75	0	0	0	0	0
117.4	0.35	70.75	117.4	-0.24	0.12	0.34	0.3
213.8	0.29	105.49	213.8	-0.46	0.15	0.85	0.21
306.9	0.28	151.82	306.9	-0.33	-0.11	1.19	0.24

402.1	0.29	183.52	402.1	0.04	-0.56	1.28	0.16
495	0.33	305.08	495	0.21	-0.64	1.05	0.58
591.4	1.02	305.31	591.39	-0.06	0.02	0.12	0.72
685.6	0.85	291.73	685.58	-0.26	0.76	-1.21	0.3
780.8	0.63	239.8	780.77	0.16	0.76	-2.32	0.71
876.3	0.79	223.67	876.26	1.18	0.02	-3.23	0.27
971.6	1.2	218.79	971.55	2.75	-1.24	-4.31	0.44
1066.2	1.79	216.49	1066.11	5.12	-3.2	-5.81	0.63
1160.9	2.14	220.42	1160.76	8.23	-5.73	-7.83	0.4
1256	2.22	220.97	1255.79	11.65	-8.47	-10.19	0.09
1351.2	2.74	226.02	1350.9	15.47	-11.45	-13.04	0.59
1447	2.38	227.54	1446.6	19.34	-14.38	-16.15	0.38
1542.8	1.33	242.56	1542.35	21.98	-16.23	-18.61	1.2
1637.9	0.77	309.77	1637.44	22.62	-16.33	-20.08	1.32
1733.3	0.89	331.77	1732.83	21.94	-15.27	-20.92	0.35
1828.6	1.63	330.87	1828.11	20.61	-13.44	-21.93	0.78
1924.2	1.76	323.26	1923.66	18.99	-11.07	-23.47	0.27
1971	1.84	310	1970.44	18.38	-10.01	-24.48	0.9
2050	1.44	311.46	2049.41	17.65	-8.54	-26.19	0.51
2146	0.07	153.74	2145.4	17.28	-7.79	-27.07	1.57
2241	0.07	242.42	2240.4	17.36	-7.87	-27.1	0.1
2336	0.22	128.03	2335.4	17.46	-8.01	-27	0.27
2431	0.1	74.88	2430.4	17.46	-8.1	-26.78	0.19
2527	0.18	341.45	2526.4	17.29	-7.94	-26.75	0.22
2622	0.22	2.04	2621.4	17.01	-7.61	-26.79	0.09
2717	0.15	334.3	2716.4	16.75	-7.32	-26.84	0.12
2812	0.18	14.5	2811.4	16.52	-7.06	-26.85	0.12
2907	0.21	31.11	2906.4	16.2	-6.77	-26.73	0.07
3002	0.3	224.14	3001.4	16.26	-6.8	-26.81	0.53
3040	0.87	227.9	3039.39	16.61	-7.06	-27.09	1.5
3068	1.37	224.98	3067.39	17.11	-7.44	-27.49	1.8
3098	2.07	225.09	3097.38	17.93	-8.08	-28.12	2.33
3192	4.08	224.13	3191.23	22.59	-11.68	-31.66	2.14
3287	5.73	222.19	3285.88	30.16	-17.62	-37.19	1.75
3383	6.09	219.39	3381.37	39.5	-25.1	-43.64	0.48
3478	6.45	219.96	3475.81	49.37	-33.09	-50.27	0.38
3574	8.23	223.39	3571.02	60.88	-42.22	-58.45	1.91
3669	9.87	225.43	3664.83	74.66	-52.87	-68.92	1.76
3763	11.56	228.36	3757.19	90.47	-64.78	-81.7	1.89
3857	13	231.97	3849.04	108.03	-77.56	-97.07	1.74
3952	16.27	226.63	3940.95	129.35	-93.28	-115.17	3.72
4046	19.17	223.26	4030.48	155.66	-113.57	-135.32	3.27
4141	22.51	222.89	4119.25	187.15	-138.26	-158.39	3.52
4235	24.53	222.57	4205.44	222.18	-165.82	-183.84	2.15
4330	24.43	223.67	4291.9	258.84	-194.55	-210.75	0.49
4424	24.95	222.63	4377.3	295.4	-223.2	-237.6	0.72
4518	25.18	222.49	4462.45	332.63	-252.53	-264.53	0.25
4612	25.47	221.48	4547.42	370.36	-282.42	-291.43	0.55
4707	24.99	219.28	4633.36	408.73	-313.26	-317.66	1.11
4802	25.37	217.51	4719.33	447.46	-344.93	-342.76	0.89
4896	25.54	215.39	4804.21	486.53	-377.43	-366.76	0.99
4991	25.52	215.35	4889.93	526.33	-410.81	-390.46	0.03



5086	25.45	215.22	4975.69	566.07	-444.18	-414.07	0.09
5181	26.49	214.51	5061.09	606.59	-478.32	-437.85	1.14
5276	26.65	212.26	5146.06	648.21	-513.79	-461.22	1.07
5370	26.69	211.8	5230.06	689.73	-549.56	-483.6	0.22
5465	26.37	211	5315.06	731.56	-585.78	-505.71	0.5
5560	27.13	214.06	5399.9	773.55	-621.81	-528.71	1.66
5655	27.34	215.63	5484.37	815.9	-657.49	-553.55	0.79
5750	27.46	213.8	5568.71	858.5	-693.42	-578.44	0.9
5844	27.37	212.56	5652.15	900.92	-729.64	-602.13	0.61
5907	27.29	211.6	5708.12	929.38	-754.15	-617.49	0.71
5970	27.36	209.62	5764.09	957.95	-779.03	-632.21	1.45
6033	27.2	209.69	5820.09	986.56	-804.13	-646.5	0.26
6096	27.28	208.86	5876.1	1015.14	-829.28	-660.6	0.62
6159	27.13	208.08	5932.13	1043.75	-854.6	-674.33	0.61
6224	26.73	207.42	5990.08	1073.03	-880.65	-688.04	0.77
6288	26.38	205.28	6047.33	1101.54	-906.28	-700.74	1.59
6351	27.68	202.79	6103.45	1130.14	-932.43	-712.38	2.74
6414	28.34	201.64	6159.07	1159.73	-959.82	-723.57	1.35
6477	29	201.56	6214.35	1189.95	-987.93	-734.69	1.05
6541	29.39	201.58	6270.22	1221.17	-1016.96	-746.17	0.61
6605	30.12	202.56	6325.78	1252.93	-1046.39	-758.11	1.37
6668	30.23	202.48	6380.24	1284.6	-1075.64	-770.23	0.19
6731	30.51	201.95	6434.6	1316.45	-1105.13	-782.28	0.62
6795	30.33	199.23	6489.79	1348.84	-1135.46	-793.67	2.17
6858	30.73	199.88	6544.05	1380.82	-1165.61	-804.38	0.82
6920	29.86	198.36	6597.59	1412.06	-1195.16	-814.63	1.87
6983	30.16	198.38	6652.14	1443.51	-1225.06	-824.56	0.48
7046	30.37	197.78	6706.56	1475.2	-1255.25	-834.42	0.58
7109	30.37	196.8	6760.91	1506.95	-1285.66	-843.88	0.79
7172	31.12	197.74	6815.06	1539.06	-1316.41	-853.45	1.41
7266	32.38	199.75	6894.99	1588.45	-1363.24	-869.36	1.75
7360	32.35	199.62	6974.39	1638.73	-1410.62	-886.31	0.08
7454	32.43	197.83	7053.76	1689.01	-1458.3	-902.47	1.02
7549	32.3	195.69	7134.01	1739.66	-1506.99	-917.13	1.21
7643	33.23	196.14	7213.05	1790.27	-1555.91	-931.08	1.02
7738	32.2	196.54	7292.98	1841.38	-1605.18	-945.53	1.11
7833	34.46	196.28	7372.35	1893.35	-1655.25	-960.27	2.38
7927	34.78	194.19	7449.71	1946.4	-1706.77	-974.3	1.31
8022	35.11	191.74	7527.59	2000.16	-1759.79	-986.5	1.52
8116	35.08	189.16	7604.5	2053.14	-1812.93	-996.3	1.58
8179	34.94	188.98	7656.1	2088.4	-1848.62	-1002	0.28
8242	35.1	189.23	7707.7	2123.68	-1884.32	-1007.72	0.34
8305	34.88	189.37	7759.31	2158.95	-1919.97	-1013.56	0.37
8368	36.08	189.02	7810.61	2194.64	-1956.07	-1019.4	1.93
8432	36.8	189.61	7862.1	2231.76	-1993.58	-1025.55	1.25
8496	36.84	189.39	7913.33	2269.24	-2031.41	-1031.88	0.22
8559	36.76	189.65	7963.78	2306.12	-2068.63	-1038.12	0.28
8622	36.6	190.47	8014.3	2342.96	-2105.68	-1044.7	0.82
8685	36.34	190.83	8064.96	2379.71	-2142.48	-1051.62	0.53
8748	36.25	188.5	8115.74	2416.17	-2179.24	-1057.88	2.19
8812	36.23	187.12	8167.36	2452.88	-2216.72	-1063.02	1.28
8875	36.08	186.54	8218.23	2488.79	-2253.63	-1067.44	0.59

8941	35.46	186.83	8271.78	2526.04	-2291.94	-1071.93	0.97
9004	33.01	187.13	8323.86	2560.31	-2327.12	-1076.23	3.9
9067	30.44	187.3	8377.44	2592.37	-2359.98	-1080.39	4.08
9131	30.05	188.37	8432.73	2623.65	-2391.92	-1084.78	1.04
9194	30.54	188.81	8487.13	2654.6	-2423.34	-1089.53	0.85
9257	30.15	188.03	8541.5	2685.57	-2454.83	-1094.19	0.88
9320	29.95	188.23	8596.03	2716.22	-2486.06	-1098.66	0.36
9383	29.71	189.04	8650.68	2746.74	-2517.04	-1103.36	0.74
9446	27.42	188.97	8706.01	2776.12	-2546.79	-1108.07	3.64
9509	25.27	188.55	8762.46	2803.36	-2574.42	-1112.34	3.43
9576	25	188.21	8823.12	2831.04	-2602.57	-1116.48	0.46
9681	22.83	182.11	8919.11	2871.8	-2644.9	-1120.4	3.13
9733	21.95	184.12	8967.19	2890.57	-2664.68	-1121.47	2.24
9828	22.7	184.38	9055.07	2924.98	-2700.66	-1124.15	0.8
9882	22.51	185.23	9104.92	2944.83	-2721.35	-1125.89	0.7
9902	22.59	184.68	9123.39	2952.17	-2728.99	-1126.55	1.13
9945	22.96	183.55	9163.04	2968.03	-2745.59	-1127.74	1.33
9979	21.71	183.06	9194.49	2980.29	-2758.49	-1128.49	3.72
10007	22.08	182.47	9220.47	2990.16	-2768.92	-1128.99	1.54
10070	22.02	181.98	9278.86	3012.45	-2792.55	-1129.91	0.31
10125	22.3	181.03	9329.8	3031.91	-2813.29	-1130.45	0.83
10197	22.61	179.72	9396.34	3057.51	-2840.79	-1130.63	0.82
10240	23.2	179.43	9435.95	3073.01	-2857.52	-1130.51	1.4
10260	23.18	180.23	9454.34	3080.31	-2865.4	-1130.48	1.58
10319	23.23	177.93	9508.56	3101.76	-2888.64	-1130.11	1.54
10343	23.14	178.59	9530.63	3110.42	-2898.08	-1129.82	1.15
10448	22.83	177.26	9627.29	3147.92	-2939.05	-1128.34	0.58
10543	21.52	176.55	9715.26	3180.46	-2974.86	-1126.41	1.41
10638	19.5	175.4	9804.24	3210.43	-3008.06	-1124.09	2.17
10732	17.8	171.65	9893.3	3236.92	-3037.92	-1120.75	2.21
10826	14.68	170	9983.54	3259.47	-3063.87	-1116.59	3.35
10921	10.83	167.17	10076.18	3277.06	-3084.43	-1112.52	4.1
11015	8.13	161.19	10168.89	3289.38	-3099.34	-1108.41	3.05
11109	5.93	150.82	10262.18	3297.49	-3109.87	-1103.9	2.69
11205	4.92	136.26	10357.75	3302.32	-3117.17	-1098.64	1.77
11300	3.92	127.83	10452.47	3304.91	-3122.11	-1093.25	1.25
11395	2.78	121.53	10547.31	3306.2	-3125.31	-1088.73	1.26
11490	3.13	120.96	10642.18	3307	-3127.85	-1084.54	0.37
11584	4.01	122.41	10736	3308.02	-3130.93	-1079.56	0.94
11616	3.59	124.35	10767.93	3308.44	-3132.09	-1077.79	1.37
11680	3.99	123.37	10831.78	3309.33	-3134.45	-1074.28	0.63
11743	3.38	125.73	10894.65	3310.22	-3136.74	-1070.94	1
11806	1.93	124.48	10957.59	3310.9	-3138.42	-1068.56	2.3
11869	0.45	117.98	11020.57	3311.16	-3139.14	-1067.46	2.36
11933	0.48	121.49	11084.57	3311.23	-3139.4	-1067.01	0.06
11996	0.14	154.98	11147.57	3311.33	-3139.6	-1066.76	0.59
12059	0.44	162.73	11210.57	3311.57	-3139.91	-1066.65	0.48
12122	0.31	343.1	11273.57	3311.62	-3139.97	-1066.63	1.19
12185	0.33	183.23	11336.57	3311.66	-3139.99	-1066.69	1
12248	0.15	232.77	11399.56	3311.9	-3140.22	-1066.76	0.41
12358	0.77	150.31	11509.56	3312.49	-3140.95	-1066.51	0.7
12470	5.58	147.17	11621.36	3316.11	-3146.18	-1063.19	4.3

N/S E/W

12562	8.06	144.65	11712.7	3322.21	-3155.2	-1057.03	2.71
12625	10.49	142.9	11774.87	3327.57	-3163.38	-1051.01	3.88
12744	11.24	141.53	11891.74	3338.93	-3181.1	-1037.26	0.67
12808	7.78	143.39	11954.85	3344.3	-3189.47	-1030.8	5.43
12872	5.39	139.27	12018.42	3347.96	-3195.22	-1026.25	3.8
12933	2.53	116.68	12079.27	3349.39	-3198	-1023.18	5.25
12997	2.48	144.22	12143.21	3350.26	-3199.76	-1021.11	1.86
13059	1.9	157.4	12205.17	3351.71	-3201.79	-1019.93	1.23
13122	1.69	164.31	12268.14	3353.2	-3203.65	-1019.28	0.48
13186	1.14	139.62	12332.12	3354.24	-3205.05	-1018.61	1.26
13249	1.02	147.69	12395.11	3354.86	-3206	-1017.9	0.31
13311	1.14	115.87	12457.1	3355.23	-3206.73	-1017.05	0.97
13374	1.09	139.81	12520.08	3355.56	-3207.46	-1016.1	0.74
13438	1.2	137.85	12584.07	3356.14	-3208.43	-1015.26	0.18
13502	0.33	137.95	12648.07	3356.52	-3209.06	-1014.69	1.36
13565	0.86	192.24	12711.06	3357.06	-3209.66	-1014.66	1.14
13629	1.3	249.89	12775.05	3358.02	-3210.37	-1015.45	1.74
13692	4.15	270.77	12837.98	3359.31	-3210.59	-1018.4	4.72
13754	4.73	272.37	12899.79	3360.97	-3210.45	-1023.2	0.96
13810	3.62	294.26	12955.64	3361.66	-3209.63	-1027.12	3.43
13873	2.65	313.77	13018.55	3361.03	-3207.81	-1029.98	2.27
13936	0.92	85.46	13081.53	3360.26	-3206.76	-1030.53	5.29
13999	1.65	96.62	13144.51	3359.79	-3206.82	-1029.12	1.22
14060	1.05	119.12	13205.5	3359.64	-3207.2	-1027.76	1.29
14126	0.86	126.78	13271.49	3359.84	-3207.79	-1026.84	0.35
14170	0.6	114.75	13315.48	3359.94	-3208.08	-1026.36	0.68
14189	0.58	78.35	13334.48	3359.89	-3208.1	-1026.18	1.94
14255	1.32	74.11	13400.47	3359.24	-3207.83	-1025.12	1.13
14507	6.69	108.5	13651.79	3356.63	-3211.7	-1008.4	2.24
14536	8.13	105.36	13680.54	3356.31	-3212.77	-1004.82	5.16
14568	9.71	104.07	13712.16	3355.69	-3214.03	-1000.02	4.98
14598	11.16	102.35	13741.66	3354.88	-3215.27	-994.73	4.94

14654

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude
WOLVERINE STATE		6347	-1088	-776	1515730	6728785	38°47'28.6"	111°56'14.0"
WOLVERINE STATE		13004	-2953.74	-1179.65	1515318	6726921	38°47'10.2"	111°56'19.0"

WELLPATH COMPOSITION Ref Wellbore: WOLVERINE STATE 20-5 AWB Ref Wellpath: WOLVERINE STATE 20-5 AWB

Log Name/ Start MD End MD Pos Unc Model

	[ft]	[ft]	
Gyrodata E	0	1971	Gyrodata relative depth - Drop gyro or Multi-shot
12 1/4" Hol	1971	10343	NaviTrak (Standard)
8 1/2" Hole	10343	12625	NaviTrak (Standard)
6 3/4" Hole	12625	14598	NaviTrak (Standard)





Covenant Field  
WS 20-5  
API# 43-041-50006

SHL NE/NW Sec 20, T23N, R1W  
Sevier County, Utah

12/27/2011 Dug out the cellar ring and cut off the rat hole and mouse hole casings. Plumbed the surface casing and the intermediate casing valves to surface. Backfilled and re-compacted around the wellhead.

12/28/2011 Installed three joints of fiberglass flowline away from the wellhead area. FMC installed the tubing head.

12/29/2011 Set rig anchors

12/30/2011 No activity

12/31/2012 No activity

1/1/2012 No activity

1/2/2012 MIRUSU and all associated equipment. Loaded 250 joints of inspected Yellow band N-80 tubing and spotted it in at the wellhead. NU BOP Started filling frac tanks with water.

1/3/2012 Picked up and run in hole with 204 joints of N-80 tubing, bit and scraper. RU pump lines and reverse circulated with 70 bbls of fresh water.  
Note: PBDT at 6988' tubing measurement.

1/4/2012 Opened well, RU Halliburton and pumped Caustic cleanout as follows:  
16 bbls Caustic wash  
16 bbls Chem wash  
16 bbls Gelled fluid  
18 bbls Fresh water  
15 bbls Acid  
16 bbls Fresh water  
45 bbls Completion fluid  
5 bbls 9.8# salt brine with 2 gallons of Baker Petrolite CRW 132  
95 bbls Completion fluid  
Rigged down and released Halliburton pump equipment. Pulled out of hole with bit and scraper.  
RU Schlumberger and ran a cement bond log from PBDT to 2700', TOC @ 3150' then run a cement bond log from PBDT to 5500' without pressure, then run a log from PBDT to TOC with 1000 psi on the casing.  
RD and released wireline unit.  
Plan to perforate squeeze holes, set CICR and TIH with tubing.

1/5/2012 Opened well, RU wireline unit and perforated squeeze holes at 6812'-6822' and 6834'-6846' with the following.  
Titan Part # EXP 3325-321T  
25 gram charges  
.41 entry hole  
45.16" penetration  
4" EXP gun loaded 6 spf on 60° phasing.  
RIH and set CICR at 6796' RD and released wireline unit.  
Plan to TIH with tubing and pump cement squeeze.

1/6/2012 Opened well, TIH with cement stinger and 217 jts tubing. Stung into cement retainer and pumped cement squeeze as follows.  
Pumped 15 Bbls CF for injectivity test (1 bpm @ 2650 psi)  
Unstung from cement retainer

Spotted 37 Bbls of H2Zero Polymer  
Shut down and stung into cement retainer  
Pumped 13 Bbls of H2Zero Polymer  
Pumped 5 Bbls FW spacer  
Pumped 5 Bbls of cement  
Pumped 5 Bbls FW spacer  
Displaced cement to CICR with 30 Bbls of CF  
Shut down and let pressure fall to 800 psi.  
Squeezed 1 bbl then shut down at 1200 psi  
Waited for pressure to fall to 1000 psi  
Squeezed .25 bbl then shut down at 1200 psi  
Waited for pressure to fall to 1000 psi  
Squeezed .25 bbl then shut down at 1200 psi  
Waited for pressure to fall to 1000 psi  
Squeezed .25 bbl then shut down at 1200 psi  
Unsting from CICR and pull up 10'. Reverse circulated well clean  
Pulled tubing up 50' and SWIFN  
Note: PBTD at 6988' tubing measurement.

1/7/2012

WOC

Plan to swab fluid level down and perforate 6685' - 6696' & 6715' - 6730'

1/8/2012

Opened well, RU swab equipment and swabbed fluid level down to 2500', RD swab equipment and pulled out of hole with tubing and cement stinger. RU wireline unit, RIH and tagged PBTD at 6789' then perforated 6685' - 6696' & 6715' - 6730' with the following:

Titan Part # EXP 3325-321T

25 gram charges

.41 entry hole

45.16" penetration

4" EXP gun loaded 3 spf on 120 deg phasing.

RD and released wireline unit. PU and RIH with RBP, RH, 2 7/8" x 2 3/8" XO, three joints 2 7/8" tubing, 2 7/8" x 2 3/8" XO, 5 1/2" HD packer, one joint 2 7/8" tubing, SN and 209 joints 2 7/8" tubing to surface.

Set RBP at 6750', released off plug and set packer at 6556'. SWIFN

Plan to swab for rate and clean up.

1/9/2012

Opened well, 30 psi tubing, 0 psi casing. RU pump line and pressure tested packer to 1000 psi, RD pump lines and RU swab equipment and swabbed well as follows:

Swab runs - 16

Water cut - 75%

Average rate -240

Average fluid level - 4050'

Total fluid recovered - 84 bbls

Perf intervals open - 6685' - 6696' & 6715' - 6730'

See 1-9 Swab report for details.

Note: The swab data from 6685'-6696' has been deleted due to false information resulting from the plug and packer being set at the wrong depths during swabbing.

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1/10/2012

Pulled out of hole with tubing, plug and packer. The remaining data from today has been deleted due to false information found during correlation logs on 1/11/2012

1/11/2012

RU wireline unit and re-perforated 6685' - 6696' & 6715' - 6730' as follows

Titan Part # EXP 3325-321T

25 gram charges

.41 entry hole

45.16" penetration

4" EXP gun loaded 3 spf on 120 deg phasing.

PU and RIH with RBP, RH, 2 7/8" x 2 3/8" XO, three joints 2 7/8" tubing, 2 7/8" x 2 3/8" XO, 5 1/2" HD packer, one joint 2 7/8" tubing, SN and 211 joints 2 7/8" tubing to surface.

Set RBP at 6707', released off plug, hung the tubing with the packer at 6493'. RU wireline unit and run in hole with gamma/ccl to correlate packer setting depth. It was determined that our plug and packer settings from the previous day were off by four joints due to a miscount of the tubing on location therefore the swab data on the upper perf set on 1/9/2012 was incorrect. RD and released wireline unit, TIH and released RBP then TIH and tagged plug back TD to insure our settings were correct, reset the RBP at 6707' and the packer at 6493'. RU pump lines and injected into the top perf set at 1 bpm with 1650 psi, RD pump lines, released plug and packer then reset the plug at 6750' and the packer at 6493'. RU Halliburton acid equipment and pumped the acid stimulation as follows.

Opened bypass on packer

Pumped 07.0 bbls CF to establish circulation

Spotted 11.9 bbls 7 1/2% FE- Acid 2 bpm

Spotted 21.4 bbls 7 1/2% FE- Acid containing Matriseal OWG 2 bpm

Spotted 03.5 bbls 7 1/2% FE- Acid containing 25 buoyant balls 2 bpm

Closed bypass on packer

Pumped 08.3 bbls 7 1/2% FE- Acid containing 25 buoyant balls 1.5 bpm

Pumped 21.4 bbls 7 1/2% FE- Acid containing Matriseal OWG 1.5 bpm

Pumped 11.9 bbls 7 1/2% FE- Acid 2 bpm

Pumped 60.0 bbls Completion 2.bpm

#### General details

ISIP	606 psi
5 Min	0 psi
Max Treating Pressure	1656 psi
Max Acid Rate	2.1 bpm
Avg Treating Pressure	1426 psi
BH Max Treating Pressure	3301 psi
BH Avg Treating Pressure	3072 psi
BH Max Rate	2 bpm
BH Avg Rate	1.8 bpm
Load to Recover	150 bbls

Note: See (One sec data 1-11 Acid stim) tab for details

Plan to swab perf intervals 6685' - 6696' & 6715' - 6730' for rate and clean up.

Opened well, 30 psi tubing, 0 psi casing. RU swab equipment and swabbed well as follows:

1/12/2012

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Swab runs - 33  
Water cut - 85%  
Average rate -950 bfpd  
Average fluid level - 2159'  
Total fluid recovered - 377 bbls  
Perf intervals open - 6685' - 6696' & 6715' - 6730'  
See 1-12 Swab report for details.  
SWIFN, Rig crew going on days off.

1/13/2012

No activity

1/14/2012

No activity

1/15/2012

No activity

1/16/2012

No activity

1/17/2012

Opened well, 50 psi tubing, 0 psi casing. RU swab equipment and swabbed well as follows:

Swab runs - 10

Water cut - 85%

Average rate -942 bfpd

Average fluid level - 1525'

Total fluid recovered - 107 bbls

Perf intervals open - 6685' - 6696' & 6715' - 6730'

See 1-17 Swab report for details.

Released packer and plug, reset plug at 6709' and the packer at 6493', RU swab equipment and swabbed well as follows:

Swab runs - 15

Water cut - 40%

Average rate -884 bfpd

Average fluid level - 1719'

Total fluid recovered - 151 bbls

Perf intervals open - 6685' - 6696'

See 1-17 #2 Swab report for details.

RD swab equipment, released plug and packer then pulled out of hole with tubing.

Plan to set CICR and squeeze off perf sets 6715'-6730'

1/18/2012

Opened well, 30 psi tubing, 0 psi casing. RU wireline unit and set a CICR at 6708', RD and released wireline unit. PU & TIH with cement stinger, xover, 1 joint, cup type SN and 241 Joints of tubing to the surface. Stung into cement retainer, RU pump lines and injected into perf interval at 6715'-6730', unstung from retainer, RU Halliburton cementing equipment and pumped cement squeeze as follows:

Pumped 16.0 bbls CF to establish circulation

Spotted 5 bbls fresh water

Spotted 5.12 bbls of Mountain G cement 15.8 ppg 1.15 yield.

Spotted 5 bbls fresh water

Spotted 27 bbls completion fluid holding 500 psi on the casing during the last 5 bbls of this stage.

Stung into cement retainer

Pumped 4 bbls of completion fluid to displace cement to perfs, SD when the well pressure reached 800 psi.

Waited 5 minutes

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Pumped .25 bbls / SD at 800 psi  
 Waited 5 minutes  
 Pumped .25 bbls / SD at 800 psi  
 Waited 10 minutes  
 Pumped .25 bbls / SD at 800 psi  
 Waited 20 minutes  
 Pumped .25 bbls / SD at 800 psi  
 Waited 20 minutes  
 Pumped .50 bbls / SD at 800  
 Waited 20 minutes  
 Pumped .50 bbls / SD at 864 psi Squeeze held at 850 psi  
 Stung out of cement retainer and the tubing pressure fell off to 0 psi  
 Started the process of reversing cement out of tubing and had no returns (perf set 6685'-6696' was taking all of the fluid) Shut down after pumping 28 bbls with a max rate of 2.5 bpm  
 Changed valving and pumped 4 bbls of water down the tubing to assure tubing was not plugged.  
 Changed valving and attempted to reverse out without success  
 Shut down and broke out the pump line to the tubing and attempted without success to pull tubing up one joint.  
 Pulled 40k over string weight and jarred several time in attempt to free tubing from cement without success.  
 RD and released cementing equipment  
 Hooked up to the annulus and pumped 10 bbls to insure the upper perf set was still open.  
 RIH with sand line to tag the cement top. Estimated top at 6500' (1.2 bbls of cement in the tubing) SWIFN  
 Note: See (1-18 Cement Squeeze) tab for details  
 Plan to locate a coiled tubing unit to drill the cement out of the tubing.

1/19/2012 No activity  
1/20/2012 Rig crew on days off  
1/21/2012 Rig crew on days off  
1/22/2012 Rig crew on days off  
 Plan to RU coiled tubing unit.  
1/23/2012 Move in Coiled tubing unit - Delayed due to road conditions.  
1/24/2012 RU Coiled tubing unit, preheat coils, pressure tested BHA, RIH to 2248' and hung up in the tubing, pulled out of hole and found that the hydraulic disconnect had parted. RD coiled tubing unit, RU braded line truck and retrieved the fish recovering all of the coiled tubing BHA. SWIFN  
 Note: It was determined that a piece of ice had been pumped into the disconnect tool causing the disconnect to separate.  
 Plan to RU coiled tubing unit and drill out the cement to the top of the cement stinger.  
1/25/2012 RU Coiled tubing unit, preheat coils, pressure tested BHA, RIH with 2 1/8" mill and tagged cement top at 6500', drilled out cement to the crossover at 6701', made two runs from the cement top at 6500' to the crossover at 6701', then pumped a sweep followed by bottoms up twice. POOH with coil, RU wireline unit and RIH with 2.090 gauge ring and stacked out on cement top at 6500', POOH and found cement chunks in the junk basket. RD wireline unit and SWIFN.  
 Plan to run a 2.34" mill to the SN then a second pass with a 2 1/8" mill below the SN.  
1/26/2012 Opened well, RU coiled tubing unit and drilled out cement from 6500' to the SN at 6669' using a 2.34" mill, pulled out of hole with 2.34" mill and run in hole with a 2 1/8" mill from the seating nipple to 6700' then

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circulated the tubing clean. Pulled out of hole with 2 1/8" mill, RD and released coiled tubing unit, RU wireline unit, RIH and run a cement bond log from TD at 6701' to 6500' and determined that there was 1' of cement in the tubing casing annulus, pulled out of hole with logging tool. RIH with Owen CUT-1812- 402 Jet cutter (1.812" diameter). Made a cut at 6698' then pulled out of hole with tubing cutter. Picked up and unsuccessfully attempted to free the tubing. SWIFN

Plan to make a second cut in the tubing then attempt to pull free.

1/27/2012

Opened well, RU wireline unit, RIH with CCL and tagged at 6566', pulled out of hole with ccl tools. Picked up and run in hole with sinker bars and spud bar unsuccessfully attempted to clear blockage in the tubing. Called for a braided line truck.

Note: The Jet Cutter Mandrel has parted from the cutter on the way out of the hole during the first cut attempt and has lodged in the tubing at 6566', a braided line truck will be used to dislodge the mandrel.

1/28/2012

Opened well, RU wireline unit, PU and RIH to 6566' with 400 lbs of sinker bars, mechanical jars, hydraulic jars and a 1.713" spud bar. Beat down and freed the aluminum cutter mandrel then chased it to bottom. PU & RIH with CCL and tagged bottom in the tubing at 6695', POOH. PU & RIH with 2 1/8" Owen CUT-1812-402 Jet cutter to 6693', made cut then pulled out of hole with cutter. Worked the tubing and was unable to free from the cut area, PU & RIH with a free point tool and confirmed tubing was 50% free at 6673'. We were unable to get back to bottom due to cement fill in the tubing from the first cut. (Tagged tubing bottom at 6689') POOH with free point tool, PU & RIH with Owen chemical cutter and successfully cut the tubing off at 6686'. RD and released wireline unit, POOH with 10 joints of tubing, RU swab equipment, and swabbed the well as follows.

Swab runs - 11

Water cut - 70%

Average rate -905 bfpd

Average fluid level - 3038'

Total fluid recovered - 123 bbls

Perf intervals open - 6685' - 6696'

See 1-28 Swab report for details.

Plan to continue swabbing until a steady rate and oil cut is determined, then pull out of hole with tubing.

1/29/2012

Opened well, 0 psi tubing, 0 psi casing. RU swab equipment and swabbed well as follows.

Swab runs - 35

Water cut - 75%

Average rate -735 bfpd

Average fluid level - 2862'

Total fluid recovered - 326 bbls

Perf intervals open - 6685' - 6696'

See 1-29 Swab report for details.

Plan to continue swabbing.

1/30/2012

Opened well, 30 psi tubing, 10 psi casing. RU swab equipment and swabbed well as follows.

Swab runs - 27

Water cut - 75%

Average rate -762 bfpd

Average fluid level - 2265'

Total fluid recovered - 198 bbls

Perf intervals open - 6685'-6696'

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Daily Activity

See 1-31 Swab report for details.

RD swab equipment, pulled out of hole with tubing.

1/31/2012

Opened well, RU Wireline unit, and perforated 6584'-6594' as follows.

Titan Part # EXP 3325-321T

25 gram charges

.41 entry hole

45.16" penetration

4" EXP gun loaded 3 spf on 120 deg phasing.

RD and released wireline unit, PU and RIH with RBP, retrieving head, 2 3/8" x 2 7/8" XO, 2 7/8" ESP drain sub, 2 7/8" x 2 3/8" XO, 2 3/8" x 8' sub, 2 3/8" x 6' perforated sub, 1.875" XN landing nipple (1.796" ID), 2 3/8" x 6' sub, HD packer and 207 joints N-80 tubing to surface. Set RBP @ 6620', set packer at 6459'. RU pump lines and pressure tested packer to 1500 psi, RD pump lines, RU swab equipment and swabbed well as follows

Swab runs - 14

Water cut - 75%

Average rate -954 bfpd

Average fluid level - 2533'

Total fluid recovered - 130 bbls

Perf intervals open - 6584'-6594'

See 1-31 Swab report for details.

SWIFN

See 1-31 DFIT BHA for details

Plan to pressure test RBP, continue swabbing, pump DFIT.

2/1/2012

Opened well, 30 psi tubing, 0 psi casing. Released packer and plug, reset plug at 6654', set packer at 6600'.

RU pump lines and pressure tested RBP to 1500 psi, test held for 20 minutes. Released packer and reset at 6459' then pressure tested packer to 1500 psi. RU swab equipment and swabbed well as follows.

Note: The DFIT was canceled due to the unexpected fluid entry from this interval.

Swab runs - 30

Water cut - 70%

Average rate -885 bfpd

Average fluid level - 2533'

Total fluid recovered - 306 bbls

Perf intervals open - 6584'-6594'

See 2-1 Swab report for details.

SWIFN

Plan to continue swabbing on perf set 6584'-6594'

2/2/2012

Opened well, 30 psi tubing, 0 psi casing. RU swab equipment and swabbed well as follows:

Swab runs - 30

Water cut - 70%

Average rate -883 bfpd

Average fluid level - 2533'

Total fluid recovered - 306 bbls

Perf intervals open - 6584'-6594'

See 2-2 Swab report for details.

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SWIFN

2/3/2012

Rig crew on days off

2/4/2012

Rig crew on days off

2/5/2012

Rig crew on days off

2/6/2012

Rig crew on days off

2/7/2012

Opened well, released packer and plug, reset packer at 6400' and swabbed perf intervals 6584'-6594' and 6685'-6696' as follows.

Swab runs - 12

Water cut - 70%

Average rate -919 bfpd

Average fluid level - 2533'

Total fluid recovered - 146 bbls

Perf intervals open - 6584'-6594' and 6685'-6696'

See 2-7 Swab report for details.

RD swab equipment, released packer, reset plug at 6670' then pulled out of hole with tubing, packer and retrieving head. RU wireline unit, RIH with 1 3/8" temperature, CCL and R/A tracer logging tools, started pumping 4% KCL water down the casing, ran a static temperature survey from 6400' to 6664' then run a R/A tracer survey through the perf interval at 6584' - 6594' with no signs of upward or downward channeling behind pipe. Repeated the process with identical results. Stopped pumping water from the surface and run a second temperature survey from 6400' to 6664' showing the bottom of the injection zone at 6593'. Run a third temp. survey 10 minutes later with identical results. RD and released wireline unit. SWIFN

Plan to TIH and retrieve the bridge plug then shut in waiting on the downhole pump.

2/8/2012

Opened well, TIH with tubing and retrieving head, released retrievable bridge plug, pulled out of hole with tubing and bridge plug. SWIFN

Plan to install ESP

2/9/2012

Opened well, RU cable spoolers and RIH with Centinel, motor, seal section, pump, SS drain sub, 1 joint of 2 7/8" 8rd N-80 tubing, 2 7/8" cup type SN, 190 joints 2 7/8" 8rd N-80 tubing to surface. ND BOP's, NU ESP wellhead turned well into production at 45 Hz. RDMOSU

See tubing tally for details

03 Hour production, 000 bopd, 031 bwpd, 45 Hz, BHP 2250

2/10/2012

23 Hour production, 023 bopd, 270 bwpd, 45 Hz, BHP 1976

2/11/2012

24 Hour production, 189 bopd, 586 bwpd, 45 Hz, BHP 1919

2/12/2012

24 Hour production, 223 bopd, 690 bwpd, 45 Hz, BHP 1905

2/13/2012

24 Hour production, 220 bopd, 724 bwpd, 45 Hz, BHP 1904

2/14/2012

24 Hour production, 220 bopd, 741 bwpd, 45 Hz, BHP 1904

Final Report

Supervisor:

*Tony E. Cook*

Rig Operator:

Josh

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Covenant Field  
WS 20-5  
API# 43-041-50006

SHL NE/NW Sec 20, T23N, R1W  
Sevier County, Utah

12/27/2011 Dug out the cellar ring and cut off the rat hole and mouse hole casings. Plumbed the surface casing and the intermediate casing valves to surface. Backfilled and re-compacted around the wellhead.

12/28/2011 Installed three joints of fiberglass flowline away from the wellhead area. FMC installed the tubing head.

12/29/2011 Set rig anchors

12/30/2011 No activity

12/31/2012 No activity

1/1/2012 No activity

1/2/2012 MIRUSU and all associated equipment. Loaded 250 joints of inspected Yellow band N-80 tubing and spotted it in at the wellhead. NU BOP Started filling frac tanks with water.

1/3/2012 Picked up and run in hole with 204 joints of N-80 tubing, bit and scraper. RU pump lines and reverse circulated with 70 bbls of fresh water.  
Note: PBSD at 6988' tubing measurement.

1/4/2012 Opened well, RU Halliburton and pumped Caustic cleanout as follows:  
16 bbls Caustic wash  
16 bbls Chem wash  
16 bbls Gelled fluid  
18 bbls Fresh water  
15 bbls Acid  
16 bbls Fresh water  
45 bbls Completion fluid  
5 bbls 9.8# salt brine with 2 gallons of Baker Petrolite CRW 132  
95 bbls Completion fluid  
Rigged down and released Halliburton pump equipment. Pulled out of hole with bit and scraper.  
RU Schlumberger and ran a cement bond log from PBSD to 2700', TOC @ 3150' then run a cement bond log from PBSD to 5500' without pressure, then run a log from PBSD to TOC with 1000 psi on the casing.  
RD and released wireline unit.  
Plan to perforate squeeze holes, set CICR and TIH with tubing.

1/5/2012 Opened well, RU wireline unit and perforated squeeze holes at 6812'-6822' and 6834'-6846' with the following.  
Titan Part # EXP 3325-321T  
25 gram charges  
.41 entry hole  
45.16" penetration  
4" EXP gun loaded 6 spf on 60° phasing.  
RIH and set CICR at 6796' RD and released wireline unit.  
Plan to TIH with tubing and pump cement squeeze.

1/6/2012 Opened well, TIH with cement stinger and 217 jts tubing. Stung into cement retainer and pumped cement squeeze as follows.  
Pumped 15 Bbls CF for injectivity test (1 bpm @ 2650 psi)  
Unstung from cement retainer

Spotted 37 Bbls of H2Zero Polymer  
Shut down and stung into cement retainer  
Pumped 13 Bbls of H2Zero Polymer  
Pumped 5 Bbls FW spacer  
Pumped 5 Bbls of cement  
Pumped 5 Bbls FW spacer  
Displaced cement to CICR with 30 Bbls of CF  
Shut down and let pressure fall to 800 psi.  
Squeezed 1 bbl then shut down at 1200 psi  
Waited for pressure to fall to 1000 psi  
Squeezed .25 bbl then shut down at 1200 psi  
Waited for pressure to fall to 1000 psi  
Squeezed .25 bbl then shut down at 1200 psi  
Waited for pressure to fall to 1000 psi  
Squeezed .25 bbl then shut down at 1200 psi  
Unstung from CICR and pull up 10'. Reverse circulated well clean  
Pulled tubing up 50' and SWIFN  
Note: PBTD at 6988' tubing measurement.

1/7/2012

WOC

Plan to swab fluid level down and perforate 6685' - 6696' & 6715' - 6730'

1/8/2012

Opened well, RU swab equipment and swabbed fluid level down to 2500', RD swab equipment and pulled out of hole with tubing and cement stinger. RU wireline unit, RIH and tagged PBTD at 6789' then perforated 6685' - 6696' & 6715' - 6730' with the following:

Titan Part # EXP 3325-321T

25 gram charges

.41 entry hole

45.16" penetration

4" EXP gun loaded 3 spf on 120 deg phasing.

RD and released wireline unit. PU and RIH with RBP, RH, 2 7/8" x 2 3/8" XO, three joints 2 7/8" tubing, 2 7/8" x 2 3/8" XO, 5 1/2" HD packer, one joint 2 7/8" tubing, SN and 209 joints 2 7/8" tubing to surface.

Set RBP at 6750', released off plug and set packer at 6556'. SWIFN

Plan to swab for rate and clean up.

1/9/2012

Opened well, 30 psi tubing, 0 psi casing. RU pump line and pressure tested packer to 1000 psi, RD pump lines and RU swab equipment and swabbed well as follows:

Swab runs - 16

Water cut - 75%

Average rate -240

Average fluid level - 4050'

Total fluid recovered - 84 bbls

Perf intervals open - 6685' - 6696' & 6715' - 6730'

See 1-9 Swab report for details.

Note: The swab data from 6685'-6696' has been deleted due to false information resulting from the plug and packer being set at the wrong depths during swabbing.

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1/10/2012

Pulled out of hole with tubing, plug and packer. The remaining data from today has been deleted due to false information found during correlation logs on 1/11/2012

1/11/2012

RU wireline unit and re-perforated 6685' - 6696' & 6715' - 6730' as follows

Titan Part # EXP 3325-321T

25 gram charges

.41 entry hole

45.16" penetration

4" EXP gun loaded 3 spf on 120 deg phasing.

PU and RIH with RBP, RH, 2 7/8" x 2 3/8" XO, three joints 2 7/8" tubing, 2 7/8" x 2 3/8" XO, 5 1/2" HD packer, one joint 2 7/8" tubing, SN and 211 joints 2 7/8" tubing to surface.

Set RBP at 6707', released off plug, hung the tubing with the packer at 6493'. RU wireline unit and run in hole with gamma/ccl to correlate packer setting depth. It was determined that our plug and packer settings from the previous day were off by four joints due to a miscount of the tubing on location therefore the swab data on the upper perf set on 1/9/2012 was incorrect. RD and released wireline unit, TIH and released RBP then TIH and tagged plug back TD to insure our settings were correct, reset the RBP at 6707' and the packer at 6493'. RU pump lines and injected into the top perf set at 1 bpm with 1650 psi, RD pump lines, released plug and packer then reset the plug at 6750' and the packer at 6493'. RU Halliburton acid equipment and pumped the acid stimulation as follows.

Opened bypass on packer

Pumped 07.0 bbls CF to establish circulation

Spotted 11.9 bbls 7 1/2% FE- Acid	2 bpm
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Spotted 21.4 bbls 7 1/2% FE- Acid containing Matriseal OWG	2 bpm
--	-------

Spotted 03.5 bbls 7 1/2% FE- Acid containing 25 buoyant balls	2 bpm
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Closed bypass on packer

Pumped 08.3 bbls 7 1/2% FE- Acid containing 25 buoyant balls	1.5 bpm
--	---------

Pumped 21.4 bbls 7 1/2% FE- Acid containing Matriseal OWG	1.5 bpm
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Pumped 11.9 bbls 7 1/2% FE- Acid	2 bpm
----------------------------------	-------

Pumped 60.0 bbls Completion	2.bpm
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General details

ISIP	606 psi
------	---------

5 Min	0 psi
-------	-------

Max Treating Pressure	1656 psi
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Max Acid Rate	2.1 bpm
---------------	---------

Avg Treating Pressure	1426 psi
-----------------------	----------

BH Max Treating Pressure	3301 psi
--------------------------	----------

BH Avg Treating Pressure	3072 psi
--------------------------	----------

BH Max Rate	2 bpm
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BH Avg Rate	1.8 bpm
-------------	---------

Load to Recover	150 bbls
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Note: See (One sec data 1-11 Acid stim) tab for details

Plan to swab perf intervals 6685' - 6696' & 6715' - 6730' for rate and clean up.

1/12/2012

Opened well, 30 psi tubing, 0 psi casing. RU swab equipment and swabbed well as follows:

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Swab runs - 33  
Water cut - 85%  
Average rate -950 bfpd  
Average fluid level - 2159'  
Total fluid recovered - 377 bbls  
Perf intervals open - 6685' - 6696' & 6715' - 6730'  
See 1-12 Swab report for details.  
SWIFN, Rig crew going on days off.

1/13/2012

No activity

1/14/2012

No activity

1/15/2012

No activity

1/16/2012

No activity

1/17/2012

Opened well, 50 psi tubing, 0 psi casing. RU swab equipment and swabbed well as follows:

Swab runs - 10  
Water cut - 85%  
Average rate -942 bfpd  
Average fluid level - 1525'  
Total fluid recovered - 107 bbls  
Perf intervals open - 6685' - 6696' & 6715' - 6730'  
See 1-17 Swab report for details.

Released packer and plug, reset plug at 6709' and the packer at 6493', RU swab equipment and swabbed well as follows:

Swab runs - 15  
Water cut - 40%  
Average rate -884 bfpd  
Average fluid level - 1719'  
Total fluid recovered - 151 bbls  
Perf intervals open - 6685' - 6696'  
See 1-17 #2 Swab report for details.

RD swab equipment, released plug and packer then pulled out of hole with tubing.

Plan to set CICR and squeeze off perf sets 6715'-6730'

1/18/2012

Opened well, 30 psi tubing, 0 psi casing. RU wireline unit and set a CICR at 6708', RD and released wireline unit. PU & TIH with cement stinger, xover, 1 joint, cup type SN and 241 Joints of tubing to the surface. Stung into cement retainer, RU pump lines and injected into perf interval at 6715'-6730', unstung from retainer, RU Halliburton cementing equipment and pumped cement squeeze as follows:

Pumped 16.0 bbls CF to establish circulation

Spotted 5 bbls fresh water

Spotted 5.12 bbls of Mountain G cement 15.8 ppg 1.15 yield.

Spotted 5 bbls fresh water

Spotted 27 bbls completion fluid holding 500 psi on the casing during the last 5 bbls of this stage.

Stung into cement retainer

Pumped 4 bbls of completion fluid to displace cement to perfs, SD when the well pressure reached 800 psi

Waited 5 minutes

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Pumped .25 bbls / SD at 800 psi  
 Waited 5 minutes  
 Pumped .25 bbls / SD at 800 psi  
 Waited 10 minutes  
 Pumped .25 bbls / SD at 800 psi  
 Waited 20 minutes  
 Pumped .25 bbls / SD at 800 psi  
 Waited 20 minutes  
 Pumped .50 bbls / SD at 800  
 Waited 20 minutes  
 Pumped .50 bbls / SD at 864 psi Squeeze held at 850 psi  
 Stung out of cement retainer and the tubing pressure fell off to 0 psi  
 Started the process of reversing cement out of tubing and had no returns (perf set 6685'-6696' was taking all of the fluid) Shut down after pumping 28 bbls with a max rate of 2.5 bpm  
 Changed valving and pumped 4 bbls of water down the tubing to assure tubing was not plugged.  
 Changed valving and attempted to reverse out without success  
 Shut down and broke out the pump line to the tubing and attempted without success to pull tubing up one joint.  
 Pulled 40k over string weight and jarred several time in attempt to free tubing from cement without success.  
 RD and released cementing equipment  
 Hooked up to the annulus and pumped 10 bbls to insure the upper perf set was still open.  
 RIH with sand line to tag the cement top. Estimated top at 6500' (1.2 bbls of cement in the tubing) SWIFN  
 Note: See (1-18 Cement Squeeze) tab for details  
 Plan to locate a coiled tubing unit to drill the cement out of the tubing.

1/19/2012

No activity

1/20/2012

Rig crew on days off

1/21/2012

Rig crew on days off

1/22/2012

Rig crew on days off

Plan to RU coiled tubing unit.

1/23/2012

Move in Coiled tubing unit - Delayed due to road conditions.

1/24/2012

RU Coiled tubing unit, preheat coils, pressure tested BHA, RIH to 2248' and hung up in the tubing, pulled out of hole and found that the hydraulic disconnect had parted. RD coiled tubing unit, RU braded line truck and retrieved the fish recovering all of the coiled tubing BHA. SWIFN  
 Note: It was determined that a piece of ice had been pumped into the disconnect tool causing the disconnect to separate.

Plan to RU coiled tubing unit and drill out the cement to the top of the cement stinger.

1/25/2012

RU Coiled tubing unit, preheat coils, pressure tested BHA, RIH with 2 1/8" mill and tagged cement top at 6500', drilled out cement to the crossover at 6701', made two runs from the cement top at 6500' to the crossover at 6701', then pumped a sweep followed by bottoms up twice. POOH with coil, RU wireline unit and RIH with 2.090 gauge ring and stacked out on cement top at 6500', POOH and found cement chunks in the junk basket. RD wireline unit and SWIFN.

Plan to run a 2.34" mill to the SN then a second pass with a 2 1/8" mill below the SN.

1/26/2012

Opened well, RU coiled tubing unit and drilled out cement from 6500' to the SN at 6669' using a 2.34" mill, pulled out of hole with 2.34" mill and run in hole with a 2 1/8" mill from the seating nipple to 6700' then

circulated the tubing clean. Pulled out of hole with 2 1/8" mill, RD and released coiled tubing unit, RU wireline unit, RIH and run a cement bond log from TD at 6701' to 6500' and determined that there was 1' of cement in the tubing casing annulus, pulled out of hole with logging tool. RIH with Owen CUT-1812- 402 Jet cutter (1.812" diameter). Made a cut at 6698' then pulled out of hole with tubing cutter. Picked up and unsuccessfully attempted to free the tubing. SWIFN

Plan to make a second cut in the tubing then attempt to pull free.

1/27/2012

Opened well, RU wireline unit, RIH with CCL and tagged at 6566', pulled out of hole with ccl tools. Picked up and run in hole with sinker bars and spud bar unsuccessfully attempted to clear blockage in the tubing. Called for a braided line truck.

Note: The Jet Cutter Mandrel has parted from the cutter on the way out of the hole during the first cut attempt and has lodged in the tubing at 6566', a braided line truck will be used to dislodge the mandrel.

1/28/2012

Opened well, RU wireline unit, PU and RIH to 6566' with 400 lbs of sinker bars, mechanical jars, hydraulic jars and a 1.713" spud bar. Beat down and freed the aluminum cutter mandrel then chased it to bottom. PU & RIH with CCL and tagged bottom in the tubing at 6695', POOH. PU & RIH with 2 1/8" Owen CUT-1812-402 Jet cutter to 6693', made cut then pulled out of hole with cutter. Worked the tubing and was unable to free from the cut area, PU & RIH with a free point tool and confirmed tubing was 50% free at 6673'. We were unable to get back to bottom due to cement fill in the tubing from the first cut. (Tagged tubing bottom at 6689') POOH with free point tool, PU & RIH with Owen chemical cutter and successfully cut the tubing off at 6686'. RD and released wireline unit, POOH with 10 joints of tubing, RU swab equipment, and swabbed the well as follows.

Swab runs - 11

Water cut - 70%

Average rate -905 bfpd

Average fluid level - 3038'

Total fluid recovered - 123 bbls

Perf intervals open - 6685' - 6696'

See 1-28 Swab report for details.

Plan to continue swabbing until a steady rate and oil cut is determined, then pull out of hole with tubing.

1/29/2012

Opened well, 0 psi tubing, 0 psi casing. RU swab equipment and swabbed well as follows.

Swab runs - 35

Water cut - 75%

Average rate -735 bfpd

Average fluid level - 2862'

Total fluid recovered - 326 bbls

Perf intervals open - 6685' - 6696'

See 1-29 Swab report for details.

Plan to continue swabbing.

1/30/2012

Opened well, 30 psi tubing, 10 psi casing. RU swab equipment and swabbed well as follows.

Swab runs - 27

Water cut - 75%

Average rate -762 bfpd

Average fluid level - 2265'

Total fluid recovered - 198 bbls

Perf intervals open - 6685'-6696'

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See 1-31 Swab report for details.

RD swab equipment, pulled out of hole with tubing.

1/31/2012

Opened well, RU Wireline unit, and perforated 6584'-6594' as follows.

Titan Part # EXP 3325-321T

25 gram charges

.41 entry hole

45.16" penetration

4" EXP gun loaded 3 spf on 120 deg phasing.

RD and released wireline unit, PU and RIH with RBP, retrieving head, 2 3/8" x 2 7/8" XO, 2 7/8" ESP drain sub, 2 7/8" x 2 3/8" XO, 2 3/8" x 8' sub, 2 3/8" x 6' perforated sub, 1.875" XN landing nipple (1.796" ID), 2 3/8" x 6' sub, HD packer and 207 joints N-80 tubing to surface. Set RBP @ 6620', set packer at 6459'. RU pump lines and pressure tested packer to 1500 psi, RD pump lines, RU swab equipment and swabbed well as follows

Swab runs - 14

Water cut - 75%

Average rate -954 bfpd

Average fluid level - 2533'

Total fluid recovered - 130 bbls

Perf intervals open - 6584'-6594'

See 1-31 Swab report for details.

SWIFN

See 1-31 DFIT BHA for details

Plan to pressure test RBP, continue swabbing, pump DFIT.

2/1/2012

Opened well, 30 psi tubing, 0 psi casing. Released packer and plug, reset plug at 6654', set packer at 6600'. RU pump lines and pressure tested RBP to 1500 psi, test held for 20 minutes. Released packer and reset at 6459' then pressure tested packer to 1500 psi. RU swab equipment and swabbed well as follows.

Note: The DFIT was canceled due to the unexpected fluid entry from this interval.

Swab runs - 30

Water cut - 70%

Average rate -885 bfpd

Average fluid level - 2533'

Total fluid recovered - 306 bbls

Perf intervals open - 6584'-6594'

See 2-1 Swab report for details.

SWIFN

Plan to continue swabbing on perf set 6584'-6594'

2/2/2012

Opened well, 30 psi tubing, 0 psi casing. RU swab equipment and swabbed well as follows:

Swab runs - 30

Water cut - 70%

Average rate -883 bfpd

Average fluid level - 2533'

Total fluid recovered - 306 bbls

Perf intervals open - 6584'-6594'

See 2-2 Swab report for details.

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SWIFN

2/3/2012 Rig crew on days off

2/4/2012 Rig crew on days off

2/5/2012 Rig crew on days off

2/6/2012 Rig crew on days off

2/7/2012 Opened well, released packer and plug, reset packer at 6400' and swabbed perf intervals 6584'-6594' and 6685'-6696' as follows.

Swab runs - 12

Water cut - 70%

Average rate -919 bfpd

Average fluid level - 2533'

Total fluid recovered - 146 bbls

Perf intervals open - 6584'-6594' and 6685'-6696'

See 2-7 Swab report for details.

RD swab equipment, released packer, reset plug at 6670' then pulled out of hole with tubing, packer and retrieving head. RU wireline unit, RIH with 1 3/8" temperature, CCL and R/A tracer logging tools, started pumping 4% KCL water down the casing, ran a static temperature survey from 6400' to 6664' then run a R/A tracer survey through the perf interval at 6584' - 6594' with no signs of upward or downward channeling behind pipe. Repeated the process with identical results. Stopped pumping water from the surface and run a second temperature survey from 6400' to 6664' showing the bottom of the injection zone at 6593'. Run a third temp. survey 10 minutes later with identical results. RD and released wireline unit. SWIFN

Plan to TIH and retrieve the bridge plug then shut in waiting on the downhole pump.

2/8/2012 Opened well, TIH with tubing and retrieving head, released retrievable bridge plug, pulled out of hole with tubing and bridge plug. SWIFN

Plan to install ESP

2/9/2012 Opened well, RU cable spoolers and RIH with Centinel, motor, seal section, pump, SS drain sub, 1 joint of 2 7/8" 8rd N-80 tubing, 2 7/8" cup type SN, 190 joints 2 7/8" 8rd N-80 tubing to surface. ND BOP's, NU ESP wellhead turned well into production at 45 Hz. RDMOSU

See tubing tally for details

03 Hour production, 000 bopd, 031 bwpd, 45 Hz, BHP 2250

2/10/2012 23 Hour production, 023 bopd, 270 bwpd, 45 Hz, BHP 1976

2/11/2012 24 Hour production, 189 bopd, 586 bwpd, 45 Hz, BHP 1919

2/12/2012 24 Hour production, 223 bopd, 690 bwpd, 45 Hz, BHP 1905

2/13/2012 24 Hour production, 220 bopd, 724 bwpd, 45 Hz, BHP 1904

2/14/2012 24 Hour production, 220 bopd, 741 bwpd, 45 Hz, BHP 1904

Final Report

Supervisor:

*Tony E. Cook*

Rig Operator:

Josh

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**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 6

**ENTITY ACTION FORM**

Operator: Wolverine Gas & Oil Company of Utah, LLC Operator Account Number: N 1655  
Address: 55 Campau NW  
city Grand Rapids  
state MI zip 49503 Phone Number: (616) 458-1150

**Well 1**

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304150006	Wolverine State 20-5		NENW	20	23S	1W	Sevier
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
B	99999	18096	6-16-2011		6/29/11		
Comments: <u>Proposed BHL: 2291' FSL, 678' FWL, Section 20, T23S, R1W</u> <u>NAVA</u> <u>BHL = NWSW</u>							

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**Well 2**

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
Comments:							

**Well 3**

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
Comments:							

**ACTION CODES:**

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

Helene Bardolph

Name (Please Print)

Signature

Engineering Assistant

Title

6/23/2011

Date

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DIV. OF OIL, GAS & MINING

**Carol Daniels - Wolverine State 20-5 Update**

*T235 R014 S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/28/2011 7:09 AM  
**Subject:** Wolverine State 20-5 Update

6/28/2011 7:06 AM

Spud at 05:00 6/28/11, Drilling 17 ½" hole at 161'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

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DIV. OF OIL, GAS & MINING

**Carol Daniels - Wolverine State 20-5 - Notification of Spud**

*T 235 R 01 W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Jones, Mark" , "Doucet, Dustin"  
**Date:** 6/28/2011 6:46 AM  
**Subject:** Wolverine State 20-5 - Notification of Spud  
**CC:** "Irons, Charlie" , "Higuera, Ed"

This is notification of spud of the 17 ½" surface hole at 144' DF on the Wolverine State 20-5, API Well 43041500060000, Lease UT ML-46605 at 05:00 hrs 6/28/11.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R 014 S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/27/2011 7:07 AM  
**Subject:** Wolverine State 20-5 Update

6/27/2011 7:05 AM

Continue rig up anticipate spud this evening.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01 W 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , ""Jones, Mark""  
**Date:** 6/26/2011 7:16 AM  
**Subject:** Wolverine State 20-5 Update

Prepare and raise derrick, r/u power to sub and derrick, connect EDS and rig water, r/u #2 mud line, filling pits with water. Anticipate spud Monday pm.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

**wolvexpl@drillmail.net**

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Carol Daniels - Wolverine State 20-5 Update

*T235 R014 5-20 4304150006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/23/2011 5:46 AM  
**Subject:** Wolverine State 20-5 Update

6/23/2011 5:44 AM

Move day 3, moved in mud tanks

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 812-0022**  
**Cell (720) 351-7470**  
**Fax (435) 304-1222**  
**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/29/2011 6:47 AM  
**Subject:** Wolverine State 20-5 Update

6/29/2011 6:44 AM

Drilling at 353'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Cell (970) 314-8219**

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OFFICE OF OIL, GAS & MINING

**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROWS-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** ""Daniels, Carol"" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 6/30/2011 7:20 AM  
**Subject:** Wolverine State 20-5 Update

6/30/2011 7:17 AM

Drilling 17 ½" hole at 517'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

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**Carol Daniels - Wolverine State 20-5 - Notification of Spud** *T23S R01W S20*

*43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Jones, Mark" , "Doucet, Dustin" , "Jarvis, Dan"  
**Date:** 7/5/2011 1:54 PM  
**Subject:** Wolverine State 20-5 - Notification of Spud  
**CC:** "Irons, Charlie" , "Higuera, Ed"

This is follow up on a voice mail left on Dan Jarvis' cell phone today.

This is notification of intent to run and cement 13 3/8" surface casing at 2028' DF on the Wolverine State 20-5, API Well 43041500060000, Lease UT ML-46605 at about 530pm this evening and could be cementing at 0230am tomorrow.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update***T235 R014 S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol", "Doucet, Dustin", "Jarvis, Dan", "Jones, Mark"  
**Date:** 7/4/2011 6:32 AM  
**Subject:** Wolverine State 20-5 Update

7/4/2011 6:30 AM

Drilling at 1638'

				ESTIMATED SCHEDULE
DATE	DAY	START TIME	HR	DESCRIPTION
4-Jul	Monday	5:30	25.00	Drill 1630-2030 (16 fph)
5-Jul	Tuesday	6:30	1.00	CBU for trip, Drop Gyro Tool
		7:30	3.50	POOH for casing, lay down 8" DC's
		11:00	7.00	RU and run casing
		18:00	1.50	Circ and condition for cement
		19:30	0.50	RD Casers
		20:00	3.00	Cement casing
		23:00	3.00	Drain riser clean cellar, RD Schlumberger
6-Jul	Wednesday	2:00	6.00	WOC
		8:00	2.00	Cut off Casing, remove riser
		10:00	3.00	Final cut and weld on bradenhead
		13:00	1.00	Test weld
		14:00	14.00	Nipple up BOPE
7-Jul	Thursday	4:00	5.00	Pressure test BOPE
		9:00		

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

**wolvexpl@drillmail.net**

**Carol Daniels - Wolverine State 20-5 Update- Corrected**

T 235A0145-20 43-041-5 0006

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol", "Doucet, Dustin", "Jarvis, Dan", "Jones, Mark"  
**Date:** 7/3/2011 9:12 AM  
**Subject:** Wolverine State 20-5 Update- Corrected

Corrected- please discard previous sent.

7/3/2011 9:06 AM

Drilling at 1337'.

ESTIMATED SCHEDULE				
DATE	DAY	START TIME	HR	DESCRIPTION
3-Jul	Sunday	9:00	31.50	Drill 1337-2030 (23 fph)
4-Jul	Monday	16:30	1.00	CBU for wiper trip, Drop Gyro Tool
		17:30	3.50	POOH for casing, lay down 8" DC's
		21:00	7.00	RU and run casing
5-Jul	Tuesday	4:00	1.50	Circ and condition for cement
		5:30	0.50	RD Casers
		6:00	3.00	Cement casing
		9:00	3.00	Drain riser clean cellar, RD Schlumberger
		12:00	6.00	WOC
		18:00	2.00	Cut off Casing, remove riser
		20:00	3.00	Final cut and weld on bradenhead
		23:00	1.00	Test weld
6-Jul	Wednesday	0:00	14.00	Nipple up BOPE
		14:00	5.00	Pressure test BOPE
		19:00		

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Carol Daniels - Wolverine State 20-5 Update***T 23B R01W 5-20 43-041-50006***From:** "Wolverine Exploration Rig"**To:** "Daniels, Carol", "Doucet, Dustin", "Jarvis, Dan", "Jones, Mark"**Date:** 7/5/2011 6:22 AM**Subject:** Wolverine State 20-5 Update

7/5/2011 6:20 AM

Drilling at 1946'.

ESTIMATED SCHEDULE				
DATE	DAY	START TIME	HR	DESCRIPTION
5-Jul	Tuesday	6:00	4.00	Drill 1941-2028 (14 fph)
5-Jul		10:00	1.00	CBU for trip, Drop Gyro Tool
		11:00	3.50	POOH for casing, lay down 8" DC's
		14:30	7.00	RU and run casing
		21:30	1.50	Circ and condition for cement
		23:00	0.50	RD Casers
		23:30	3.00	Cement casing
6-Jul	Wednesday	2:30	3.00	Drain riser clean cellar, RD Schlumberger
		5:30	6.00	WOC
		11:30	2.00	Cut off Casing, remove riser
		13:30	3.00	Final cut and weld on bradenhead
		16:30	1.00	Test weld
		17:30	14.00	Nipple up BOPE
7-Jul	Thursday	7:30	5.00	Pressure test BOPE
		12:30		

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

**wolvexpl@drillmail.net**

Carol Daniels - Wolverine State 20-5 Update

T 235 18014 5-20 43-041-5006

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/2/2011 7:01 AM  
**Subject:** Wolverine State 20-5 Update

7/2/2011 6:59 AM

Drilling at 864'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 REIW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/1/2011 7:15 AM  
**Subject:** Wolverine State 20-5 Update

7/1/2011 7:12 AM

Drilling 17 ½" hole at 614'.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 23S R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol", "Doucet, Dustin", "Jarvis, Dan", "Jones, Mark"  
**Date:** 7/6/2011 9:15 AM  
**Subject:** Wolverine State 20-5 Update

7/7/6/2011 7:25 AM

Circ and cond casing for cement.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update** *T 235 ROW S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/7/2011 6:44 AM  
**Subject:** Wolverine State 20-5 Update

7/7/2011 6:41 AM

NU BOPE.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
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**Cell (970) 314-8219**

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**Carol Daniels - Wolverine State 20-5 Update**

*T23S R01W5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/11/2011 7:10 AM  
**Subject:** Wolverine State 20-5 Update

7/11/2011 7:06 AM

Hole depth 2,966', TIH at 2,902', Change Tru-Trak motor

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 ROW 5-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/10/2011 7:46 PM  
**Subject:** Wolverine State 20-5 Update

7/10/2011 7:44 PM

Hole Depth 2,966', TIH at 1,105' after changing out failed MWD module

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
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**Carol Daniels - Wolverine State 20-5 Update** *T235 R01W 5-20 43-041-50006*

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**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/9/2011 8:00 AM  
**Subject:** Wolverine State 20-5 Update

---

7/9/2011 7:56 AM

Filling mud tanks with OBM. Calibrating PASON

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**wolvexpl@drillmail.net**

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**Carol Daniels - Wolverine State 20-5 Update**

*T 235 R01W S-20 43-041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/8/2011 7:14 AM  
**Subject:** Wolverine State 20-5 Update

7/8/2011 7:12 AM

Prep to pick up BHA.

**Tom Zupan**  
**Drilling Supervisor**  
**Wolverine Gas and Oil Company of Utah, LLC**  
**Rig (970) 361-3276**  
**Cell (970) 314-8219**

[wolvexpl@drillmail.net](mailto:wolvexpl@drillmail.net)

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**Carol Daniels - Wolverine State 20-5 Update**

*T235 R01W 5-20 43 041-50006*

**From:** "Wolverine Exploration Rig"  
**To:** "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 7/14/2011 7:58 AM  
**Subject:** Wolverine State 20-5 Update

7/14/2011 7:56 AM

Drilling at 5,280', PR 52 fph

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Wolverine State 20-5, AFE 246**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470 Cell service is poor**  
**wolvexpl@drillmail.net**

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